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Studies in Diabetes

GEORGE H. TUTTLE, A.B., M.D.

ASSISTANT IN MEDICINE, MASSACHUSETTS GENERAL HOSPITAL

South Acton, Mass.

III. The Blood Sugar and the Sugar Machinery Which Controls Carbohydrate Metabolism

THE sugar of the blood, being the resultant of the addition of sugar to it from the foods and the subtraction of sugar from it through the action of insulin and anaerobic reactions, serves as an index of the general metabolic activity so far as carbohydrate metabolism is concerned. But in order to understand why it rises and falls, it is necessary to make a complete study of insulin and the machinery of its production, distribution and general regulation.

Insulin

Insulin is produced by the cells of the body. In the pancreas the cells of the Islands of Langerhans produce a special kind of insulin, which we will call pancreatic insulin; all other tissue cells produce the fundamental or cell insulin, which is found in all forms of life both animal and vegetable; and this we will call the cellular insulin. These two insulins have definite but different functions. Pancreatic insulin serves to bring about the rapid oxidation of glucose with the release of heat and chemical energy. Cellular insulin likewise causes the oxidation of glucose, but in addition has the power of condensing the monosaccharids into the polysaccharid glycogen; and I wish to emphasize the fact that it alone has that power[1]. Both insulins cause the oxidation of glucose although in different ways, but cellular insulin alone can cause the deposition of glycogen in the tissue cells.

The distribution of these insulins is of consequence. The cellular insulin produced in the cells has its action in these cells and needs no distributing. The pancreatic insulin, on the other hand, is produced in the pancreas but acts in the blood and cells of the body and must be distributed to them. Therefore the insulin must be discharged from the pancreas before it can act. By what mechanism? Certain experiments were made by A. H. Clarke in 1915-16 in which he perfused the living pancreas with Locke's solution to which glucose had been added and found that no glucose disappeared from the solution, thus proving that the insulin, though present, was held

inactive by some influence. Macleod and many others verified this fact. The reason of this is because trypsin, existing in the form of tripsinogen in the pancreas, held the insulin inactive, as is shown experimentally to be the case *in vitro*. Pancreatic insulin therefore cannot be set free until the tripsinogen is discharged from the pancreas by the humoral action of the hormone secretin, whose action will be discussed later. We can say at this point however that secretin always acts following a meal.

The regulation of the supplies of insulin requires a very complicated machinery which must be discussed in detail. There are two main channels through which the production of insulin may be stimulated. These have been called the humoral and the neurogenic; and the mode of stimulation is different for the two insulins. In humoral stimulation the pancreatic insulin is released from its inactive state by the action of the hormone secretin, which is produced in the duodenum, following the entrance of the acid contents from the stomach after each meal. The cellular insulin, however, is definitely stimulated humorally by glucose or abundant carbohydrates as is plainly shown by the experiment of Thalhimer during which intravenous glucose solutions were given continuously for many hours until hypoglycaemic convulsions occurred from the excessive stimulation of cellular insulin[2].

In neurogenic control the mechanism is elaborate. In 1920[3] Brugsch and others located two nerve centres in the vagus nucleus of the brain. If one of them, which I will call the insulin centre, were stimulated the blood sugar would fall, showing that insulin had been thrown into the blood. Later anatomical researches revealed that certain nerve filaments extended from the nucleus down through the right vagus nerve and minute endings were distributed to the individual cells of the Islands of Langerhans. If the other centre, which I will call the epinephrine center, were stimulated the blood sugar would rise, showing that extra sugar had been thrown into the blood. Later researches revealed that if the distal end of the cut splanchnic nerve were stimulated the same effect was produced. Finally it was found that the injection of ephinephrine also produced the same effect. So that there seems to be no doubt that impulses from the epinephrine centre pass through the splanchnics to the medulla of the suprarenals setting free epinephrine which mobilizes the glycogen supplies and raises the blood sugar. It seems then that these are the two mechanisms by which Nature raises or lowers the blood sugar through nerve influence. But it was not until the ingenuity of LaBarre[4] solved the question that we could see how these centres could be stimulated in normal life. He demonstrated that as the blood sugar rises after meals it stimulates the insulin centre which immediately calls upon the pancreas for more insulin. Although the reverse has not yet been scientifically proved as regards the epinephrine center there is strong evidence that this is also the case. For instance 99 per cent of insulin reactions will recover without assistance, and the only way this can happen is by raising the blood sugar. Also in convulsive cases muscle glycogen is thrown into the blood to raise the blood sugar. It is noticeable in these mechanisms as in other endocrine action that they are one way devices, *i. e.*, means of increasing the hormones are provided but no means of inhibiting an excessive supply. A different method is used, by which the action of one hormone is neutralized by the action of another; thus an excess of insulin action is neutralized by the throwing out of epinephrine to counteract it, simplifying the machinery and making each a one way device.

This completes description of the sugar machinery with its humoral and neurogenc control of the two insulins as I believe it exists, and with this preliminary survey I will proceed to examine how the various nutritive processes act by means of this machinery and cause the rise or fall of the blood sugar.

The Blood Sugar

In analyzing the variations of the blood sugar we must distinguish two distinct periods, the absorptive and the post-absorptive or fasting. During the first the foods are going through the process of digestion and are being absorbed in their soluble state into the blood. During the second, although there is no further absorption of carbohydrates from the alimentary canal there is a slow but continuous addition of glucose to the blood from the metabolising of amino acids, and some glucose may be added from glycogen reserves in the various glycogen depots, as needed, but these additions are only slight as compared with those of the absorptive period following meals, and hardly affect the fasting sugar curve at all. The absorptive period lasts from 2 to 3 hours following meals, and the fasting periods cover the rest of the 24 hours. The normal average blood sugar will be considered as 100 mgm. per cent, the normal rise as not exceeding 170 mgm. and the lower or convulsive level as 45 mgm. per cent.

Let us consider first the fasting or post-absorptive periods and as the best example of these, we will take the period from 9 P. M. to 6 A. M. three hours after the supper at 6 P. M. All food has passed out of the stomach through the duodenum to parts beyond. The blood sugar has returned to normal, so that neither by the humoral or neurogenic channels can any more pancreatic insulin be brought into play. Cellular insulin alone must keep the blood sugar normal during the ensuing period of 9 hours till breakfast. Does it actually do it? Can it do it in spite of the additions of glucose to the blood from the internal metabolism? The following study of hourly blood sugars on normal individuals seems to establish this fact. Trimble and Maddock[5] of the Harvard Medical School made 24 hourly tests of the blood sugar on nine medical students. The sugar curve for the fasting hours mentioned above was a wavy straight line, the limits of the variation being between 93 mgm and 97 mgm. during the entire period. Also in 84 tests just before breakfast made on students they found an average of 93.6 mgm. From the above facts I draw the conclusion that the cellular insulin alone controls the variations of the blood sugar during the fasting periods.

Let us now consider the absorptive periods following the meals. The normal curve of blood sugar rises during the first hour and falls to normal at the end of 2 hours without exceeding 170 mgms. Occasionally normal may not be reached until 3 hours. The rapidity of the rise is influenced greatly by the kind of sugar contained in the meal. Galactose absorbs from the upper intestine very rapidly and as it has no kidney threshold, escapes from the body without hardly raising the blood sugar. Glucose is absorbed almost as quickly but is retained in the body, and if there is much of it in the meal, the blood sugar may atttain its height in a half hour. Fructose absorbs much more slowly and affects the blood sugar gradually. The starches requiring digestion in the

intestine are slowly absorbed during the 3 hour period, being added to the blood during the falling period of the curve. By these means carbohydrates are added to the blood during the absorptive period.

It is now necessary to consider the counteracting forces which by their action reduce the blood sugar to normal and release the stored energy of the foods in the form of heat and chemical energy. These forces are the two insulins and oxygen, since by these the glucose must be either oxidized or temporarily stored as glycogen, or the excess converted to fat. The pancreatic insulin according to the researches of Cori[6] will oxidize 38 per cent of this glucose, leaving 62 per cent to be either oxidized or converted to glycogen by the cellular insulin and the balance converted to fat. We have hardly realized that this cellular insulin had such an important part to play in the metabolism of glucose but I know of no argument which contradicts these facts. To continue our examination of the action of pancreatic insulin. It is released from its inactive state first by the action of the hormone secretin, by the humoral pathway; then, it is discharged by the action of the rising blood sugar on the vagal nucleus through the neurogenic pathway, and these stimuli act until the food has passed through the duodenum, and the blood sugar has fallen from its high levels. The result of its action is the oxidation of 38 per cent of the glucose. But the cellular insulin is also increased by the stimulus of the rising blood sugar; the tissue cells are bathed in this excess of glucose and as Thalhimer's experiment shows, cellular insulin action increases enormously, oxidation increases in the cells, and the deposition of glycogen to the extent of 52 per cent in the cells of the muscles and liver, and other tissues as shown by the Cori experiment, shows that the activity of cellular insulin is equal to and even greater than that of the pancreatic insulin, and yet up to the present time no account has ever been taken of this insulin in making our conclusions.

By the action of the two insulins and oxygen the glucose absorbed into the blood during the absorptive period is either oxidized or converted into glycogen or fat, and the blood sugar reduced to its normal level. From this it can be seen that during the fasting period only the cellular insulin is required, but during the absorptive period both insulins are engaged actively in carrying out their different functions, to keep the blood sugar normal.

Conclusions

1. Carbohydrates are absorbed into the blood during the absorptive periods. Some sugar is added to the blood during the fasting periods from the metabolism of other foods and from the glycogen reserves.
2. Glucose is removed from the blood by the action of the two insulins and oxygen (and some by anaerobic reaction).
3. Pancreatic insulin is released from its inactive state in the pancreas by the action of the hormone secretin; and is discharged from the pancreas under the stimulation of nerve impulses from the insulin centre in the vagus nucleus which is normally excited to action by the rising blood sugar following a meal. The action of this insulin results in the oxidation of 38 per cent of the glucose absorbed into the blood.
4. Cellular insulin, produced continuously by the cells, is further stimulated by an excess of glucose in the blood. Its functions are to oxidize glucose in the cells and to convert glucose to glycogen for storage in all the tissue cells of the body. It is the only insulin capable of causing the deposition of glycogen.
5. Since in all diabetic states it is generally acknowledged that there is a deficiency of insulin, and a deficiency of glycogen deposition, it seems logically certain that there must be a deficiency of cellular insulin in these states.
6. The blood sugar is the resultant of the action of all these forces and its variations are dependant upon the extent of such action.

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4. La Barre, Quoted by Macleod in *Lancet*, Sept. 6, 1930.
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IV. A General Method for the Accurate Adjustment of Insulin in Ordinary Diabetic Cases

OF course no general rule will apply to the unusual or freak cases of diabetes, but these are relatively rare, and will always require the art as well as the science of an expert; on the other hand a definite method may be formulated for the treatment of all ordinary cases. In this method urinary or blood sugar tests made just before each meal will be of prime importance, while the occurrence of reactions at different times of day or night will be shown to be of the greatest value in adjusting the insulin. In all cases, unless otherwise stated, the diet remains stationary during the adjustment period. In those where the kidney threshold has been proved to be normal by a preliminary blood sugar test, the urinary tests may be taken as correct estimates of the condition of the blood, and may be so used by general practitioners in private practice.

Our first step is to divide the day into periods of five hours each, viz: 7 A. M.-12 M-5 P. M.-10 P. M. In normal individuals the urinary or blood sugar tests would be found within normal limits just before the hours mentioned. In diabetics excess sugar will be found in these tests. Our problem is to give just enough insulin before each of these meals to make the following test normal, i. e., sugar free or blood sugar within normal limits.

The adjustment of the insulin can be accomplished more quickly of course in hospital practice as the initial dosage can be made larger, but in private practice the patient should be shown, at the first call, how to take 2 units of insulin before each meal and requested to bring three specimens of urine to the office on the next day: each specimen to be passed immediately before a meal. If sugar shows in any test, raise the insulin of the meal preceding this test by three units: If the test before breakfast shows heavier than the others raise insulin before breakfast by six units. Ask patient to return next day with same specimens and also one passed at 10 o'clock P. M. Wherever sugar shows in these tests raise insulin of meal preceding by two units and have patient

continue to bring four samples day by day until all tests except that before breakfast have become sugar free. A special innovation will be necessary to perfect further adjustment. This consists of giving a glass (eight ounces) of milk containing about 17 gms. C. H. at 10 o'clock with an additional dose of 6 units of insulin. Now we must readjust the 10 o'clock and breakfast insulins to each other. The patient still brings his four urinary specimens daily. If, under this new 10 o'clock regimen the test before breakfast contains sugar then we raise the 10 o'clock insulin by 2 units daily until the breakfast test comes clear. But during this process we will after a while get a reaction in the forenoon because the breakfast insulin at first is always higher than it will be later, because so much sugar accumulates during the night. But our 10 o'clock insulin is now taking care of this night sugar and so we find it necessary to reduce our morning insulin as we raise our 10 o'clock dose. If this process is continued, all four tests will become sugar free and the insulin may be said to be perfectly adjusted. Following this original adjustment new adjustments may become necessary as the patient improves in tolerance or loses tolerance. If the tests show sugar then a little insulin must be added to the dose just before the bad test. If reactions occur then the insulin, just before the reaction, must be reduced. And so on.

The perfect adjustment of insulin by this method would be a simple matter if all cases of diabetes were alike. But there are at least three classes of cases which take different courses after the insulin is adjusted. 1. Those cases which remain at the original level of adjustment and never change unless for the worse. 2. Those cases which show slight improvement after arrangement of the diet and correction of the deranged metabolism but still require constantly a liberal amount of insulin. 3. Those cases which under careful treatment show a steady improvement in tolerance as shown by the frequent reactions, and in which the insulin may be reduced from such amounts as 75 to 100 units, in the course of a few months, to no insulin at all. It is in these last cases that reactions are a blessing and only call for a readjustment of insulin downward.

Following is the record of a typical case requiring insulin adjustment first, followed by improvement with elimination of insulin. The principles of the method are shown in this case.

ADJUSTMENT TABLE

Day	7 a. m. Test	Reac.	12 M. Test	Reac.	5 P. M. Test	Reac.	10 P. M. Test	Reac.	Numbers represent insulin units	7 A. M. Test.	Reac.
1	2 Red		2 Yellow		2 Yellow		0 Green			Red	
2	6 Red		4 Yellow		4 Green		0 Green			Red	
3	10 Red		6 Green		6 Blue		0 Blue			Red	
4	12 Red		6 Blue		6 Blue		6 Blue		Milk and 6 insulin at 10 o'clock	Yellow	
5	10 Yellow		6 Blue		6 Blue		8 Blue		Milk & 8 insulin	Green	
6	8 Green		6 Blue		6 Blue		10 Blue		" & 10 "	Blue	
7	6 Blue		6 Blue		6 Blue		10 Blue		" & 10 "	Blue	
8	6 Blue		6 Blue	X	6 Blue		10 Blue	X	" & 10 "	Blue	
9	6 Blue		4 Blue	X	6 Blue		8 Blue		" & 8 "	Blue	
10	6 Blue		2 Blue	X	6 Blue		8 Blue		" & 8 "	Blue	
11	6 Blue		0 Blue		6 Blue	X	8 Blue	X	" & 8 "	Blue	
12	6 Blue		0 Blue		4 Blue	X	6 Blue	X	" & 6 "	Blue	
13	6 Blue		0 Blue		2 Blue	X	4 Blue	X	" & 4 "	Blue	
14	6 Blue		0 Blue	X	0 Blue		2 Blue	X	" & 2 "	Blue	
15	4 Blue	X	0 Blue		0 Blue		0 Blue		0 & 0 "	Blue	X
16	2 Blue	X	0 Blue		0 Blue		0 Blue		0 & 0 "	Blue	X
17	0 Blue		0 Blue		0 Blue		0 Blue		0 & 0 "	Blue	

After 7th day	Every test is blue	Insulin 4 times daily
After 11th day	" " " "	" 3 " "
After 13th day	" " " "	" 2 " "
After 14th day	" " " "	" 1 " "
After 16th day	" " " "	" 0 " "

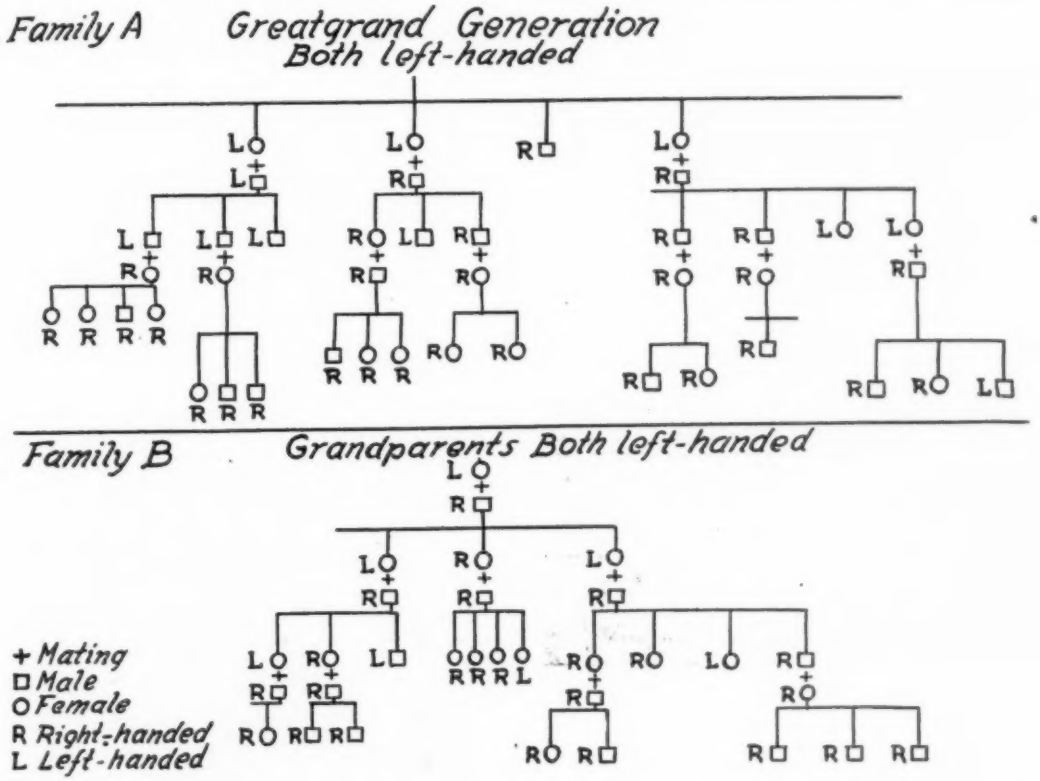
The above table represents a case in which seven days were required for the perfect adjustment of the insulin. Steady improvement of tolerance followed the adjustment, resulting in the complete withdrawal of insulin in seventeen days. Cases vary widely in the length of time required for withdrawal of insulin; it may be weeks or months instead of days, before it is accomplished; and in about 10% of the cases no improvement or very little can be expected. Every case, however, should be thoroughly tried out by this method. During the adjustment period the

(*Concluded on page 275*)

Constructive Eugenics

ALFRED GORDON, M.D.
Philadelphia, Pa.

CONSTRUCTIVE eugenics is a reality based on strict application of scientific principles. In the following two examples one finds a confirmation of only one of the multiple varieties observed in all spheres of human inheritance. It concerns a gradual diminution and even disappearance of a peculiar trait in the function of the upper extremities which has been traced in several generations.



Family A.—Both great-grandparents were left-handed. There were three daughters, left-handed, and one son, right-handed. One daughter married a right-handed man and they had two right-handed sons and two left-handed daughters. The other daughter married a left-handed man and they had three left-handed sons. The third daughter married a right-handed man and they had three children: a right-handed son, a left-handed son, and a right-handed daughter. The two right-handed children married right-handed individuals, and their children are all right-handed. The following generation presented all right-handed offspring except one case.

Family B.—Grandparents are both left-handed. There was only one child,—daughter, left handed. She married a right-handed man. They had two left-handed children and one right-handed. They all married right-handed individuals. The following generations showed a tremendous increase of right handedness. In the subsequent generation it happened that the left-handed never married. All right-handed brought into the world exclusively right-handed offspring.

1812 Spruce Street.

(*Concluded from page 274*)

diet must be kept absolutely stationary as it is impossible to get results if the diet and insulin are changed at the same time. A moderately high carbohydrate and a fairly low fat diet is recommended such as is represented by the figures C125—P 75—F75—Calories 1475.

Salicylates in Rheumatic Fever

Thirty-three patients who received adequate salicylate therapy and thirty who served as controls were compared clinically and as to detailed electrocardiographic evidence of myocardial involvement. No essential difference was discovered.

In the rheumatic fever patients, whether or not salicylates were administered, a 100 per cent involvement of the myocardium was found. The duration of hospital stay in the control group was forty-six days; in the salicylate group, forty-two days. One death occurred in each group. Polycyclic course, occurrence of pericarditis with or without effusion, and involvement of the lungs and other viscera were practically the same in the two groups.

The electrocardiographic changes indicative of myocardial involvement revealed a surprising coincidence of changes in the two groups, qualitatively and quantitatively.

There is no evidence that salicylates prevent cardiac complications or shorter the duration of hospital stay, although they are at present the most efficient antipyretics and analgesics for the treatment of acute rheumatic fever.—A. M. Master, M.D., and Alfred Romanoff, M.D., *J. A. M. A.*, June 4, 1932.

Intravenous Urography*

FRANK C. HAMM, M.D.
Brooklyn, N. Y.

THE interest in the development of a contrast medium that would be excreted by the kidneys was greatly stimulated by the development of the gall-bladder dye by Graham. Rowntree, of the Mayo Clinic, was the first to report in 1923 a visualization of the urinary tract by intravenous injection of 10% sodium iodide. This substance was unsatisfactory for two reasons: the iodide could not be given in sufficiently large quantities without toxic reactions and the kidney was incapable of concentrating these small amounts sufficiently to visualize satisfactorily the pelvis and calyces.

FIGURE "A"
The arrow points to shadow of stone approximately 1 x 1½ cm. in the right lower ureteral area. The dilated ureter can be seen above this point of obstruction. The pelvis and calyces are dilated II, indicating about 25% destruction of the right kidney.

Professor Binz in 1929 developed an organic iodine compound called Selectan with the idea of using it as a urinary antiseptic. It was found that this substance visualized fairly well and several important improvements were made, the most important being the substitution of the pyridine group for the toxic methyl radicle. The new compound was called Uroselectan or Iopax. Swick, an American, working with Professor von Lichtenberg at the University of Berlin, carried out investigations first on animals and then on patients. This substance was found to be quite safe and fairly good results were obtained.

Intravenous Urography cannot be applied indiscriminately in routine urological diagnosis. It is particularly useful in obstructive conditions of the upper urinary tract, with their resulting pyelectasis, but the medium is usually not concentrated highly enough to reproduce the fine detail of the pelves and calyces. For this reason the diagnosis of early tuberculosis, early renal tumor or polycystic disease cannot be made.

* From the Urological Service of the Grace Clinic.

Determination of Renal Function

A very good idea of the function of the kidneys usually may be obtained by means of intravenous urography. This appraisal is based on two factors, first, the appearance time, which indicates the "thrust" of the kidney, as Dr. Swick chooses to call it. The normal kidney will make a very good showing in from six to ten minutes. The second factor is the conformation of the pelvis and calyces.

One must be careful in depending upon the intravenous urogram entirely as a functional test. Only a small amount of medium appearing in a kidney does not always mean the kidney has a reduced function; the pelvis and calyces may be emptying very rapidly. Such interpretations should be made only by one experienced in pyelography, or the urological examination should be supplemented by differential function tests.

Technique and Choice of Media

The preparation of the patient consists of a thorough elimination of the contents of the gastro-intestinal tract. This may be accomplished by administration of one ounce of castor oil the evening before, followed by enemas on the morning of the examination.

FIGURE "B"
Intravenous Urogram taken approximately six weeks after right ureterolithotomy. Some dilitation still remains in the right lower ureter but it is interesting to note how rapidly the outline of the pelvis and calyces is returning to the normal size.

The patient lies upon the *x*-ray table and an air bag is placed over the bladder area and compressed with a canvas band. The object of this is to produce a moderate compression of the lower portion of the ureters, this maneuver being more successful in thin subjects.

The medium is then injected intravenously, care being

(*Concluded on page 291*)

Colon Anomaly—Case Report*

LOUIS R. WILEY, M.D.
Philadelphia, Pa.

MISS I. S. Age 37, Secretary.

Family History:—

Father—age 76—5 ft. 6 in. tall, never weighed over 120 pounds. Aside from being constipated all his life, is well.

Mother—age 66—has always enjoyed good health except when 45 years of age was operated for uterine fibroid. Good recovery. No miscarriages.

One brother—age 36—has a cleft palate, operated on 3 times for this condition. Underdeveloped sexually. No hair on body, never has shaved. Has the pelvis of a woman. Highly nervous, suffers from fits of depression. Has an organic heart lesion.

MISS I. S.

Past Medical History:—

Usual diseases of childhood. Scarlet fever when 8 years of age which left her with discharging ear. It kept running for 20 years. When born was a healthy baby until she was 6 years of age. At this time had a spell of illness which was called "poisoning" for the want of a better term. Had moved into a new home and the mother and brother always were afflicted with the same condition at the same time. Appendicitis when 18 years of age. Operated on, good recovery. Rheumatic fever 3 years ago. Sick 9 weeks, good recovery.

Menstrual History:—

Never menstruated until after appendicitis operation when 18 years of age. Weight at that time was 82 pounds, now weighs 110 pounds. Menstruated very irregularly for 4 or 5 years until she changed to the 28-day type, lasts 3 days, no pain or discomfort.

Was given a thorough physical examination by Dr. S. when she was 28 years of age, in a local hospital where she remained for 2 days having blood tests, X-rays, etc. Was told she was going through a very early menopause and was given several injections of ovarian extract at that time.

Present History:—

Dates from illness when 6 years of age to present time.

Chief Complaint:—

Loose bowels. This interfered with her general activities of various kinds all her life. Was never able to go away owing to the frequency of bowel movements; 8 or 9 movements during the day and 1 or 2 at night was the usual occurrence. The bowel movements did not change till she was 25 years of age when for some unknown reason they numbered 4 a day. At numerous times consulted various doctors who diagnosed the condition as intestinal indigestion and was given various remedies.

Laboratory Report:—

The laboratory examination shows the blood, urine, and feces negative and the Wassermann negative.

X-Ray Report:—

Fluoroscopic examination of the abdomen showed the presence of considerable gas in lower left pelvis.

Film made of the abdomen after the injection of an opaque enema shows the presence of a very short colon, that is to state, the entire length of the large bowel, from the cecum to the rectum, measures about two feet. There appears to be a complete absence of the descending colon and the sigmoid appears to be about 8 in. long.

In the superior portion of the rectum near its junction with the sigmoid, about 4 in. from the anus, we note a constricted area about ¼ in. wide and about 1½ in. long. This area appears to be regular in outline and I do not feel it is due to malignancy but that the condition is rather one of malformation. In this funnel-like process we note the presence of considerable gas. The transverse colon and ascending colon show the presence of marked spasm but in none of the bowel are we able to demonstrate the presence of any haustra.

1509 North 15th Street.

* Presented before the Philadelphia Clinical Association, December 1, 1931.

Brucella Abortus Isolated from Tonsils

Undulant fever is now a well established disease of man, but much information is wanting concerning its diagnosis, modes of infection, pathology and treatment. There are those who like to believe that Brucella abortus gains entrance to the body only through wounds, while others prefer to accept the digestive tract as the common channel through which the invasion occurs. Undoubtedly, both routes are vulnerable. Soon after Brucella abortus was discovered in raw cow's milk, Mohler and Traum became interested in determining whether the organism was pathogenic for man. They infected guinea-pigs with extracts from fifty-six tonsils and adenoid tissue removed from children who had drunk raw milk. They reported finding typical lesions of the disease in one guinea-pig, from whose liver, spleen and testes Brucella abortus was isolated.

In studying the effect of feeding milk artificially and naturally infected with this organism to calves, the senior author observed that the lymph nodes draining the mouth and pharynx became infected first and remained infected the longest of any of the tissues examined. This observation on calves suggested a further study of diseased tonsils from man.

In 1926, examinations on fifty-five pairs of tonsils were made at Ithaca, N. Y. A study of the tonsils from a patient with undulant fever, from the Medical Service at the Strong Memorial Hospital, Rochester, N. L., has recently been made.—CHARLES M. CARPENTER, M.D., *et al J. A. M. A.*, July 23, 1932.

Medico-Legal Aspects of the Workmen's Compensation Law*

GEORGE N. EDSON, M.D.; LL.B.
New York, N. Y.

FOR the working man and woman, who depend for a livelihood on wages earned by their daily labor, some form of insurance is necessary to protect them against destitution following industrial accident. The first form of social insurance to be extensively developed in the United States was Workmen's Compensation for industrial accidents. The direct aim of the Workmen's Compensation Law is to restore the injured man to industry as completely and quickly as possible, and to provide for the support of the family during the period of disability.

The full beneficial effect of the act in New York State has been attained through the progressive and humane efforts of the present industrial commissioner, Frances Perkins, and the tireless efforts of all employees of the New York State Department of Labor. The Workmen's Compensation Commission administers the law in New York under the guidance of the Industrial Commissioner. The Commission determines, under the statute law laid down by the legislature, how much indemnity is to be received by the injured claimant.

When bodily injury is caused by an accident, the case has two main aspects, the one legal, the other medical.

The law has been so fully developed that except in rare cases the legal position of the man is clear, provided the necessary facts can be proved. In considering the medical aspect of such a case, all this legal precision vanishes. In each case there is no law or report, to which we may look to see the result of the medical facts proved. All that can be obtained is the evidence of the doctors on each side. The evidence is of two classes, the first dealing with injurious effects produced on the human body by an accident. The second deals with the unforeseen consequences which may or may not flow from these injuries. From this highly controversial material the commission has to decide the extent of the plaintiff's injuries.

Untrustworthy evidence may be given by a man who makes an honest error in sheer ignorance, or by one who dishonestly makes a guess instead of frankly confessing to his lack of knowledge. There is a class also who live by giving expert evidence, and often with extreme ingenuity and plausibility commit deliberate perjury in the witness box; a perjury made worse by the fact that it is uttered by an educated and professional man, who knows he cannot be prosecuted, as he swears he is only expressing his opinion.

In England, the Judge has the aid of a medical assessor; and in New York the Industrial Board is aided in its determinations by a Medical Department headed by the present Chief Medical Examiner Dr. Raphael Lewy, whose medical ability and clinical acumen have been indispensable in clearing up controversial questions concerning accidents and their causal relation to disease.

In about 15 states, medical advisers have been appointed to assist the boards in carrying out the medical provisions of the compensation acts. These medical advisers assist at hearings, examine claimants, and rate permanent disabilities, as it is for the medical adviser to decide just what percentage of loss of function the claimant has sustained.

Industrial traumatic surgery is probably the best term to apply to surgery in its relation to the Workmen's Compensation Law. Traumatic surgery implies emphasis upon the careful study of the etiology of trauma and upon temporary and permanent disability in their relationship to the ultimate permanent defects as they affect the earning capacity of the working man in his vocation.

In noting the relationship between the injury and the accident, the physician and surgeon should keep in mind the following factors:

1. What are the immediate consequences of the accident?
2. What chance is there of disease supervening as a remote consequence of the injury?
3. Was there any disease existing before the accident and aggravating its effects?
4. Within what time will the man be physically cured, and when will he be fit to return to his former work, or to undertake some other employment?
5. Is there any need for an operation, and, if so, is it such an operation as a reasonable man would elect to undergo?
6. Is there any likelihood of a recurrence of the consequences of the injury?

By Article I, Section 2, Subdivision 7 of the Workmen's Compensation Law "Injury" and "Personal Injury" mean only accidental injuries arising out of and in the course of employment, and such disease or infection as may naturally and unavoidably result therefrom. According to the definition approved by the Appellate Division and the Court of Appeals, an accident is "an unlooked for mishap or an untoward event which is not expected or designed". You will note that the accidental injury must not only arise out of but also must occur during the course of employment and both these factors must be present in order to permit the alleged accident to come within the scope of the law. An injury does not "arise out of and in the course of the employment", when at the time it occurs the employee is doing something not incidental to his employment.

The courts have held the following *not* to be accidental:

1. Chill from working in refrigerators (Lerner v. Rump Bros., 241 N. Y. 153).
2. Chill from working in dampness and rain (Bixby v. Cotswold Comfortable Co., 195 App. Div. 659).

The following have been held to be accidental:

1. Chill from immersion in a river (Rist v. Larkin & Sangster, 171 App. Div. 71).
2. Chill from working in icy water (Christian v. State Conservation Comn., 191 App. Div. 635).

The Department of Labor made awards for chill by an excessive draft of cold air: Doshey v. Fire Companies Bldg. Corp., 20 State Dept. Report 419; and by change from hot to cold room: Hart v. Rogers, 31 S.D.R. 583.

The admission of water polluted with typhoid germs to a labor camp and the drinking of it by the camp laborers was held to be an accident and death benefits

* Read before the Society of Medical Jurisprudence, January 11th, 1932, at the New York Academy of Medicine.

were awarded on account thereof: Schwartz v. McCleary, et al, 118 Special Bulletin 24. The Appellate Division has affirmed an award to the family of a waiter poisoned by food provided by his employer: Fitzpatrick v. Postal Restaurant Co., 30 S.D.R. 324.

The Court of Appeals affirmed awards in the case of a teamster crushed by the wheels of his wagon when he fell from his seat, cause of his fall being unknown and intent or intoxication not being evident (Mausert v. Albany Builders Supply Co., 250 N. Y. 21); and in the case of a painter who died of a fractured skull caused by fall from a scaffold because of an apoplectic stroke (Barath v. Arnold Paint Co., 238 N. Y. Rep. 625); but reversed award in the case of a painter who died of a fractured skull caused by fall from a mere standing or walking position because of an epileptic fit; (Andrews v. L. & S. Amusement Corp., 253 N. Y. 97). The Appellate Division earlier affirmed award for injury to a brickmaker by a fall from a height, his position having caused dizziness; (Santacroce v. Sag Harbor Brick Works, 182 App. Div. 442); but reversed award in the case of a street foreman who died of a fractured skull caused by fall from a standing position because of heart failure (Collins v. Brooklyn Union Gas Co., 171 App. Div. 381).

Early decisions of the New York courts have determined frostbite and heat prostration to be accidents. The inhalation of coal gas has been held to be accidental in O'Dell v. Adirondack Elec. Power Co., 223 N. Y. Rep. 686; the Court of Appeals has affirmed award to a garage employee for injury by carbon monoxide of running motors: Michelfelder v. Van Alstyne, 245 N. Y. Rep. 569. The Board made award for death from bronchitis caused by fumes from a trench containing ammonia and chloride of lime: McNiven v. Highland Hospital, 231 App. Div. 782.

These latter cases have been cited by me to show you the trend of decisions which led to the incorporation of poisoning by carbon monoxide and other fumes as an occupational disease. By a specific section of the law, Section 3, Subdivision 2, compensation is payable for disabilities sustained or death incurred by an employee resulting from the following occupational diseases:

1. Anthrax.
2. Lead poisoning or its sequelae.
3. Zinc poisoning or its sequelae.
4. Mercury poisoning or its sequelae.
5. Phosphorus poisoning or its sequelae.
6. Arsenic poisoning or its sequelae.
7. Poisoning by wood alcohol.
8. Poisoning by benzol, etc.
9. Poisoning by carbon bisulphide or its sequelae, or any sulphide.
10. Poisoning by nitrous fumes or its sequelae.
11. Poisoning by nickel carbonyl or its sequelae.
12. Dope poisoning (poisoning by substances used as a solvent for acetate of cellulose or nitrocellulose.
13. Poisoning by formaldehyde and its preparations.
14. Chrome poisoning.
15. Epitheliomatous cancer or ulceration of the skin or of the corneal surface of the eye, due to tar, pitch, bitumen, mineral oil, or paraffin, or any compound, product or residue of any of these substances.
16. Glanders.
17. Compressed air illness or its sequelae.
18. Miners' diseases from any process involving mining.
19. Cataract in glassworkers.

The following occupational diseases are the more recent ones which the legislature has enacted.

20. Radium poisoning or disability due to radio-active properties of substances or to Roentgen rays.
21. Methyl chloride poisoning.
22. Carbon monoxide poisoning.
23. Poisoning by sulphuric, hydrochloric or hydrofluoric acid.
24. Respiratory, gastro-intestinal or physiological nerve and eye disorders due to contact with petroleum products and their fumes.
25. Disability arising from blisters or abrasions.
26. Disability arising from bursitis or synovitis (housemaid's knee).
27. Dermatitis (venenata).

Any process involving the use of or direct contact with the above deleterious substances which I have enumerated causes the disease sustained to be classified as a compensable occupational disease. However, the effect by any one of the above may be so sudden, unexpected, and overwhelming as to constitute accident or may be due to entrance of them into accidental wounds, and so may be compensable under Subdivision 7 of Section 2 which I have mentioned above.

As regards injuries to the nervous system, the Court of Appeals has affirmed an award for disablement by cerebral apoplexy or psycho-neurosis due to fright: Pickerell v. Schumacher, 242 N. Y. Rep. 577. The Appellate Division has affirmed an award to women employees for injuries from fright: Butkus v. Berzetes, 216 App. Div. 777.

Awards have been affirmed for deaths from excitement of an altercation; of chasing a thief, and for paralysis caused by a struggle with a horse.

Strain, the most common cause of invisible injuries to internal organs and parts of the body, is accidental: Jordan v. Decorative Co. 230 N. Y. 522. Injury need not "present a visible or external sign": Fowler v. Risedorph Bottling Co. 175 App. Div. 224.

The physician is often called upon to determine the causal relation between a hernia and an alleged accident and certain postulates may aid him in formulating his opinion. We know that hernia is a disease which ordinarily develops gradually, being very rarely the result of an accident. When there is a real traumatic hernia present resulting from the application of force to the abdominal wall (directly or indirectly) note if the following postulates occur.

1. The individual must be aware of the accident immediately, and report same.
2. The accident can be either direct impact or force, or a physical exertion.
3. The individual must perceive pain immediately in the inguinal region and be compelled to discontinue work, temporarily in any event.
4. The pain, however, need not continue.
5. There must be evidence of a hernia either immediately or within a period of about twenty-four hours after an alleged injury.

In the definition which I quoted of "injury" and "personal injury" I stated that such injury must arise out of and in the course of employment, and also include such disease or infection as may naturally and unavoidably result therefrom. The latter clause includes disease which although antedating the accident has been aggravated, accelerated, developed or hastened by it. For example, a heavy strain or other accident may develop an unknown heart defect and cause sudden death, or injury by the upsetting of an automobile may light up latent tuberculosis and cause life-long disability. An injury to the spinal column, or to a joint, either due to direct or indirect violence, may be a very important factor in activating a dormant tuberculous condition, quiescent for a long time, or may be a cause for dissemination of the tuberculosis. The same applies also to syphilis.

Physicians are often called upon to decide whether trauma has been a causative factor in the development of malignant bone tumors and other cancers. Cancer as we know is a hyperplasia of neoplastic tissue.

William B. Coley in studying the etiology in 970 cases gives a history of trauma in 225 cases, or 23 per cent. In 117 of these 225 traumatic cases the tumor developed within the first month after the alleged injury. In 225 cases 105 originated in the bone. In the other 120 cases the origin was in the soft tissues. In 250 cases of carcinoma there were 120 cases of carcinoma of the breast, with a history of only one trauma preceding the formation of the tumor. Dr. Coley in a recent article concludes among other things:

1. That a single local trauma may be the direct exciting cause of the development of a malignant tumor of practically all histoligical types, can no longer be denied.
2. Antecedent local trauma is observed more frequently in sarcoma than in other types of malignant tumor, and in sarcoma of bone more than in sarcoma of the soft parts.
3. The opinion that trauma cannot be regarded as a causative factor in cancer if the interval of time is too short or too long, has been greatly modified by newer evidence. There are now on record many definite examples of so-called acute traumatic malignancy, in which the tumor developed within a few days or one or two weeks after the injury. While the limit in the other direction has been usually regarded as two years, there is a tendency at present to extend this limit and to recognize a causal relationship between a trauma and a tumor that has developed more than two years later, although in such cases it is much more difficult to establish such relationship.

Raphael Lewy in an article "Cancer in its Relationship to Trauma" (Bulletin No. 1, Medical Division, Dept. of Labor, May 1923) states "that the radiographic study has been of great aid in the study of the relationship of trauma to sarcoma, namely: If at the date of the injury, or within a very short time after the alleged injury (forty-eight hours), a radiograph is taken of the parts injured, and such radiograph shows a fracture, and if at the site of the fracture or in the vicinity of the fracture there is no other visible radiographic bone lesion suspicious either of a hyperplasia of bone tissue, or any inflammatory changes; and if within a reasonable time thereafter (several months) there develops at the site of the alleged injury a neoplasm which is proven radiographically, there can be no doubt but that the injury was the important factor in the development of such neoplasm.

"If, however, the radiographic findings at the time of the injury or within a reasonably short time after the alleged injury show evidence of a bone lesion, not definite enough to be considered radiographically as a malignant growth; and if in studying this case this radiographic picture changes, and within a number of months, up to a year, there develops an enlargment of the growth which radiographically is confirmed as being malignant, we must conclude that the injury was an activating and aggravating factor in the rapid development of a previously existing bone lesion, which without an injury may not have been progressive.

"If, however, at the time of the injury, or within a reasonable period thereafter, the radiograph shows evidence of and advanced disease at the site of the injury, it is my opinion that the injury neither caused nor aggravated a pre-existing malignant lesion, but the injury was merely coincidental, and the disease cannot be considered to have been caused or influenced by the injury."

As regards trauma to the skull, we find injuries to the skull need not show immediate external manifestations at the site of the injury.

There are fractures of the skull, fissure fractures as well as fractures at the base, which at certain times do not show immediate manifestations of injury nor immediate sequences.

The sequelae following injuries of the skull may be very severe after mild injuries, and may be very mild after fractures of the skull.

Loss of consciousness following an injury to the skull either of short or long duration, need not be a sequence of a fracture to the skull, but is always an indication of a concussion of the brain.

Concussion of the brain need not be accompanied by a fracture of the skull.

As fractures of the skull are aften overlooked, either in consequence of no external manifestations of the injury or of no immediate post-traumatic sequelae, it is advisable to radiograph every skull after an injury due to a fall, or some heavy object striking it.

Where there has been unconsciousness following an injury to the skull, and although there has followed a remission of apparent well being, the prognosis as to the future development of a neurosis and its sequences should always be considered.

Slight injuries to the skull which may have no serious posttraumatic effect upon an apparently normal individual may cause a severe imbalance in the personality of an individual who has neurotic tendencies. An injury to the skull in a person having suffered from infections, as syphilis, or who has been addicted to excessive use of alcohol, may be the precipitating factor for the development of a psychosis.

A differential diagnosis between functional neurosis and simulation or malingering is at certain times very difficult, and sometimes impossible. Each case must be studied individually by a skillful and mature clinician. (Bulletin No. 3 Med. Division N. Y. S. Dept. of Labor.)

The employer must promptly provide the injured employee with such medical, surgical or other attendance or treatment . . . for such period as the nature of the injury or the process of recovery may require. If the employer fails to provide the same, after requests by the injured employee, such injured employee may do so at the expense of the employer. However, no claim for medical or surgical treatment is valid and enforceable as against such employer unless within 20 days following the first treatment the physician furnishes to the employer and the Industrial Commissioner a report of such injury and treatment, on a form prescribed by the industrial commissioner. However, the industrial board by unanimous vote may excuse the failure to give such notice within 20 days when it finds it to be in the interest of justice to do so and may make an award for the reasonable value of such medical and surgical treatment Inadequate or improper treatment justifies an employee in procuring a physician of his own selection without making further requests of his employer (187 App. Div. 961). The insurance carrier has no voice in selection of the physician. (Mezeribsky vs. Mezeribsky & Miller 185 App. Div. 119). All fees and other charges for treatment and services whether furnished by the employer or otherwise are limited to such charges as prevail in the same community for similar treatment of injured persons of a like standard of living.

Before the introduction of workmen's compensation laws the injured employee could recover for his suffering, maiming, loss of earnings and expense of medical treatment only by suing his employer in a court of law.

As such action was likely to mean discharge, few employees sought their legal remedy unless the injury were very severe and the expected indemnity correspondingly large. If the case was brought to court the employer had the traditional legal defences to aid him, mainly "the fellow servant" rule, the "contributory negligence" defense, and finally the claim of immunity under the "assumption of risk" principle.

These defenses are no longer necessary to the employer who is insured under the Workmen's Compensation Law, for negligence is no longer a factor. The only question when negligence arises is that defense put up by the employer (or insurance carrier on his behalf) that the accident was due to the willful intention of the injured employee to bring about injury or death of himself or another, or has been solely occasioned by intoxication of the injured employee while on duty; but I desire to call to your attention that the accident must be "solely due to intoxication" to be a perfect defense.

If the employer fails to secure payment of compensation for his injured employees and their dependents as provided in Section 50 of the Workmen's Compensation Law, an injured employee, or his legal representative in case death results from the injury, may, at his option, elect to claim compensation under this chapter, or to maintain an action in the courts for damages on account of such injury; and in such an action it shall not be necessary to plead or prove freedom from contributory negligence, nor may the defendant plead as a defense that the injury was caused by the negligence of a fellow servant, nor that the employee assumed the risk of his employment, nor that the injury was due to the conributory negligence of the employee.

New York has a compulsory Workmen's Compensation Law, that is, every employer carrying on a business or enterprise for gain in which one or more persons are engaged in a hazardous employment must provide compensation for his workers against accidental injury. "Hazardous" employment as set forth in the law includes nearly all forms of work or services except farm and domestic employment. In addition employers who engage four or more workers or operatives in any kind of employment not defined as "hazardous" must likewise secure compensation protection for employees.

In a case reported in the New York Law Journal of Jan. 5, 1932 of Margaret Fay v. Horace DeCamp, we find although the employer had taken out workmen's compensation insurance to cover his domestic employees, failure to comply with certain provisions of the law made the act unenforceable. Miss Fay, a domestic servant, therefore elected to bring the action to recover at common law against her employer for the negligence of his chauffeur. The Court of Appeals held: Where a maid, employed by defendant, is injured by the negligence of defendant's chauffeur while being transported in the employer's automobile from one residence to another, and seeks to recover damages from the employer, held, since both plaintiff and the chauffeur were co-employees engaged upon the master's business, the fellow servant rule is a complete bar to the action.

I desire to call attention to an important section of the law, Section 21, dealing with presumptions. The importance of this section cannot be over-estimated as it is a clear aid in presenting your case before the commission and often voids wasting a good deal of time. In any proceeding for the enforcement of a claim for compensation under this chapter, it shall be presented in the absence of substantial evidence to the contrary:

1. That the claim comes within the provision of this chapter;
2. That sufficient notice thereof was given;
3. That the injury was not occasioned by the willful intention of the injured employee to bring about the injury or death of himself or of another;
4. That the injury did not result solely from the intoxication of the injured employee while on duty.
5. That the contents of verified medical and surgical reports introduced in evidence by claimants for compensation shall constitute prima facie evidence of fact as to the matter contained therein.

The Department of Labor must be satisfied that an accident has happened before the presumptions established by Section 21 can arise (Collins v. Bklyn Union Gas Co. 171 App. Div. 381). The presumptions of Section 21 are as operative and binding in the court upon appeal as in the Commission: Rheinwald v. Builders' Brick & Supply Co., 168 App. Div. 433. The defendant must offer evidence to the Commission; otherwise the claim is presumptively legal: McQueeney v. Sutphen & Myer, 167 App. Div. 528.

Under Subdivision 1, the employer and carrier must prove that the employment was not covered by the law or that the accident did not arise out of and in the course of it. Given an accident and a subsequent disability, the presumption is that the disability is a consequence of the accident.

Under Subdivision 2, the notice presumed to have been given is the written notice of Section 18 which states that the notice of an injury or death for which compensation is payable shall be given to the Commissioner and to the employer within 30 days after the accident causing such injury, and also in case of the death of the employee resulting from such injury, within 30 days after such death. Such notice may be given by the person claiming to be entitled to compensation; or by someone in his behalf. The notice shall be in writing. The failure to give such notice unless excused by the board either on the ground that notice for some sufficient reason could not have been given or on the ground that the employer, or his or its agents in charge of the business in the place where the accident occurred, or having immediate supervision of the employee to whom the accident happened, had knowledge of the accident or death, or on the ground that the employer has not been prejudiced thereby, shall be a bar to any claim. But the employer and the insurance carrier shall be deemed to have waived such notice unless the objection to the failure to give such notice or the insufficiency thereof is raised before the board on the hearing of the claim filed by the injured employee or his or her dependents. The object of giving notice is to give an employer an opportunity to investigate and enable the employer to test the good faith of the claimant (Hynes v. Pullman Co. 233 N. Y. 342).

It is important to note that a referee's excuse of failure to give notice does not suffice. The board must be the one to grant the excuse.

The Industrial Board, as constituted, consists of five members, at least one of whom shall be an attorney and counselor at law duly admitted to practice in the state. The members are appointed by the governor by and with the advice of the Senate, the term of office being six years. Each member is obliged to take the constitutional oath of office.

By Section 20 of the Workmen's Compensation Law, this board is given full power and authority to determine all questions in relation to the payment of claims presented to it for compensation. The section further provides as follows: "The decision of the board shall be final as to all questions of fact, and, except as provided in Section 23, as to all questions of law."

Section 23 provides for an appeal to the Appellate

Division of the Supreme Court within thirty days after the award or decision is made.

The Court of Appeals in 1916 decided in Matter of Heitz v. Ruppert (218 N. Y. 148) that the decision of the commission or the State Industrial Board was final on all questions of fact, and such has been the practice in this state ever since that time. The Court of Appeals has held in the Matter of Paul Helfrick v. Dahlstrom Metallic Door Company, decided May 12, 1931, that the New York State Workmen's Compensation Law is not unconstitutional because it constitutes the Industrial Board the final judge of the facts.

The procedure under our statue, the Court of Appeals has held, does not violate the due process clause of the 14th Amendment of the Federal Constitution since all the elements of due process are afforded by the statute. A claim is presented to the State Industrial Board and an opportunity is afforded for a hearing of all parties interested. The hearing is conducted much like a trial, with more liberality as to rules of evidence than is permitted in the ordinary case in court. When the decision is made an appeal lies by either party to the Appellate Division. That court must determine whether or not on the review of the facts there be any evidence to sustain the award.

The industrial board or the commission cannot make an award without evidence to support it, and this question is always open in the courts on appeal both to the Appellate Division and finally to this court. Only where there is a conflict in evidence, or the reasonable inferences to be drawn from the evidence, is the decision of the board or commission on this conflict conclusive.

By Section 118 of the Workmen's Compensation Law technical rules of evidence or formal rules of procedure are not required but the board may make such investigation or inquiry, or conduct such hearing in such manner as to ascertain the substantial rights of the parties. Declarations of a deceased employee concerning the accident shall be received in evidence and shall, if corroborated by circumstances or other evidence, be sufficient to establish the accident and the injury. The Court of Appeals has held in Carroll v. Knickerbocker Ice Company (218 N. Y. 435) that the commission in its discretion is allowed to accept hearsay or any other kind of evidence but does not authorize it to make an award unsupported by a residuum of legal evidence. The commission can make an award upon hearsay evidence alone, if the employer has introduced no contradictory evidence (192 App. Div. 936). The courts, however, will not hold hearsay incompetent, if the insurance carrier has introduced it or has received it without objection at the commission's hearings (Hernon v. Holohan, 182 App. Div. 126).

Neither does the hearing before the Industrial Board lack the elements of due process because the members of that board may be laymen and not lawyers duly admitted to practice within this state. Unlike our own state constitution, there is nothing in the Federal Constitution or the acts of Congress, including the United States Judicial Code (tit. 28, chap. 1), which requires judges of courts, federal or state, to be lawyers or admitted to practice.

The board or commission determines the events that have passed—the employment, the wages, the accident, the injury. Such readily submit to oral proof, and the process of finding them is of a judicial nature. Such a board has the dignity and the form of many of our courts, the only distinction being that of name.

Claims of attorneys and counselors at law for legal services in connection with any claim arising under the Workmen's Compensation Law shall not be enforceable unless approved by the board. (Section 24 of the Workmen's Compensation Law). If approved, such an attorney's claim becomes a lien upon the compensation awarded.

Under a rule adopted by the Industrial Board all persons, firms or corporations other than attorneys and counselors at law desiring to represent claimants at any hearing relative to a claim for compensation must make application for a license to the Industrial Board upon a printed form furnished by the Industrial Commissioner; and if approved, such license is issued at a fee of $50 per year. However, representatives of charitable and welfare organizations, labor unions and bona fide organizations of employees if granted a license do not have to pay such fee.

By Section 24 of the Workmen's Compensation Law, any other person, firm or corporation (thereby not including attorneys and counselors at law), who shall exact or receive fee or gratuity for any services rendered on behalf of a claimant, except in an amount determined by the board, shall be guilty of a misdemeanor. Any person, firm or corporation who shall solicit the business of appearing before the board on behalf of a claimant, or who shall make it a business to solicit employment for a lawyer in connection with any claim for compensation under this chapter, shall be guilty of a misdemeanor.

In conclusion I trust that I have pointed out in a general way the importance of a knowledge of the law to the physician and the importance of the various medical topics under discussion to the attorney. There is no broader field open in medicine today than the proper care of the industrial patient; and the attorney equally shares the duty of giving proper representation of the injured man before the Industrial Commission.

33-25 84th Street, Jackson Heights, N. Y.

Discussion

S. E. Senior, Esq.: To those of you who know Dr. Edson—who are acquainted with his splendid medical and legal attainments—who know that his observations are made from a mountain top of years of study and experience—any additional remarks on my part must indeed appear presumptuous. I propose to avoid that risk, however, by directing your attention—from a critical angle—to one or two features of Workmen's Compensation law and procedure which, I feel from my experience as compensation attorney for the Legal Aid Society, may bear discussion.

At the Legal Aid Society, perhaps one of our most frequent requests for assistance in Workmen's Compensation cases comes from the *hernia* victim. We have heard Dr. Edson tell that the majority of hernias are not of traumatic or accidental origin, but that they develop gradually. We have also heard him enumerate the conditions necessary to establish a compensable hernia claim—to wit, immediate pain and cessation of work and early manifestation of the condition. I need hardly add that many workmen find it quite difficult to satisfy these requirements. I suggest, therefore, the *advisability of adding hernia to the list of compensable occupational diseases.* This would compensate and provide for the many unfortunates who develop hernia through continuous sustained work of a nature that requires heavy lifting or prolonged straining.

Another observation that I should like to make arises out of the occasional necessity of representation by attorneys and fixing their fees. One of the principles underlying all Workmen's Compensation laws is the desire to secure uniform, expeditious relief to injured workmen. Of necessity, this contemplates the elimination, so far as possible, of delay, legal technicalities and representation by counsel. In the great majority of cases this purpose is realized. Where, however, the employer or insurance carrier contests a case and puts the employee or his widow to the necessity of proving his claim and retaining counsel, the question of an attorney's fee arises. As Dr. Edson has explained, this fee is fixed by the Referee at the conclusion of a successful case. Let me emphasize the fact, however, that the fee, as fixed, constitutes a lien on the claimant's award, and is deducted from his compensation money. Referees, anxious to preserve the claimant's awards, generally fix the counsel fee at such a woefully low figure that the average attorney studiously

avoids this type of practice. The result, naturally, is that the bar, as a whole, is unfamiliar with the provisions of the Workmen's Compensation law and procedure before the Industrial Board.

I suggest that where the employer or insurance carrier contests a case, thereby frequently compelling the claimant to retain counsel, the attorney's fee should, in the same manner as costs, be added to the award, and be paid by the defendant. This would have the three-fold advantage of: first, preserving intact the entire compensation award for the claimant; second, deterring employers from improperly contesting meritorious claims, and lastly, offering an inducement to attorneys to familiarize themselves with what is probably the greatest piece of social legislation of this century.

I. Arthur Stoloff, M.D.: I am grateful for the privilege of being here and listening to the very interesting, thorough and informative presentation which Dr. Edson has made this evening on the important subject of the medico-legal aspects of the Workmen's Compensation Law. After Dr. Edson's presentation there is very little more to say. I wish to take the liberty, however, of accentuating certain points which I feel should be stressed from the angle of the *surgeon*, who is cooperating with both the patient and the Carriers. Since the emergency surgeon is the first one to be consulted immediately following an injury he is in an excellent position to know the exact conditions which existed at that time. In these cases, as in all other cases where a physician or surgeon is called upon for diagnosis and opinion, careful and detailed records should be kept, for he must be prepared with all the facts in the case when he is called upon to testify.

Testimony before the Industrial Commission is rather an informal procedure as compared with testimony before criminal or circuit courts—the surgeon can therefore feel at ease when he is called upon. Like all litigations, medico-legal contests are many sided, making testimony more complicated for the surgeon than it perhaps should be. There are unfortunately so many unjustified, perhaps unscrupulous claims connected with the claims made as a result of physical injury, and so many attempts to distort, perhaps evade the truth, that the medical witness no matter how confidently he has made his diagnosis, and competently given treatment, must nevertheless tread warily to avoid being confused or tricked during testimony. There are certain fundamental questions which arise in regard to the present and future status of the case under treatment:

Assuming that the patient is honest in his claims about the symptoms of his injury,—Has his debility brought on a neurosis? What is the condition which is presented—the physical results of the injury, or the neurosis? Is the physical defect the result of the injury for which he claims damages or did it antedate the accident? During his employment, did any physical defect or constitutional weakness initiate or precipitate his susceptibility to the accident for which he now seeks compensation? Was there present any disease before the accident which might aggravate its ill effects? And last, and unfortunately not least, is the claimant honest, or is he an outright *malingerer?* It might be of interest to cite a case under treatment.

To illustrate.—The patient met with an injury and went to his family physician, to whom he stated that he had sustained his injury while washing a pan, during which action a piece of the enamel covering of the pan had entered the tip of his finger. This conscientious doctor in an effort to relieve the acute pain experienced by the patient incised the terminal phalanx endeavoring to remove the acute cause. Instead of the patient being relieved from his pain, a very septic infection arose in 24 hours. The condition presented a typical picture of lymphangitis. The patient was a very sick man who did not improve under continued treatment by the family physician. After a week he was sent to the hospital where I first saw him as an emergency case. The routine diagnostic procedure revealed several very interesting features about this case which, if discovered early enough, might have brought about an entirely different result. A Wassermann revealed that the patient was luetic; the blood chemistry showed the presence of a blood sugar of 280 mgm. We are dealing now with a patient who, in addition to his injury, has two pre-existing conditions—diabetes and lues. The progress of this case you can all understand. The infection spread, and in spite of the efforts to combat the existing constitutional diseases, the patient lost his finger. At the present time the patient is still in the hospital under careful and skillful observation and treatment, but nevertheless he may have to lose his arm, possibly his life. This case illustrates very strikingly the wisdom of *early and thorough diagnosis,* not only as to the local conditions surrounding the seat of injury, but of the general systemic picture. The primary function of the surgeon in treating industrial injuries is to restore the patient to normal function. After all, these patients, as all patients, are entitled to the greatest consideration and it is our duty to give them the best that is in us. In the case cited—the man possibly should not have lost his finger—and there is a risk of extension of the infection to the involvement of his arm and possibly his life, the result of inadequate and injudicious early treatment.

To illustrate another case: A young lady, twenty-four years of age, sustained an injury to her leg and foot, having been struck by a hat block. She was taken to a hospital where the leg and foot were placed in a plaster cast. A few weeks later the cast was removed, but the patient, however, continued to complain of severe pain and nerve disturbance. She also assumed a flexion deformity of the knee and foot. She consulted many doctors and was confined to another institution for several weeks when the Carrier referred the case to my service at the hospital. A careful history and physical examination revealed the fact that this patient had had two abdominal operations. I also found an absent pulsation of the dorsalis pedis artery of the injured leg. There were symptoms suggestive of an obliterative endarteritis and partial ischemia. She remained under my care at the hospital for more than a year puzzling the entire staff and leading consultants in the city. Just exactly what had brought about or contributed to the condition? Was an anomaly present? Had she some congenital circulatory defect? Did the pressure of the cast cause an ischemia? Was this a progressive endarteritis? She has been confined to many institutions and at present is an inmate of a city institution without a definite diagnosis. The following are a few of the numerous diagnoses which have been made in this particular case:—

Oblitering endarteritis, hysterical contractures, traumatic neurosis and myasthenia gravis. This patient has been bed-ridden for the last few years with no perceptible improvement. This is a typical puzzling case with which we surgeons who treat numerous traumatic injuries must contend when the patient has been referred to us tardily, or when the picture is complicated by deliberate uncooperativeness of the patient.

Another illustrative case is that of a waiter who stated that while carrying some dishes he accidentally walked into a table, injuring himself in the left inguinal region. The family physician was first called in and finding no condition due to trauma he informed the wife that her husband was evidently suffering from some psychic disturbance. He was discharged as well as also a second physician. A third doctor was then called who advised an operation, informing the patient that he was suffering from a hernia and some injury to his genitals.

At this stage the company was notified and the patient was brought to my office. Upon examination I found no evidence of any acute condition present in the inguinal region, no evidence of hernia, varicocele, hydrocele or orchitis, but found the patient very much agitated and flighty. I discussed the case with the insurance Carrier, advising hospitalization as I anticipated litigaton. At the hospital, after many consultations with eminent specialists, my diagnosis of psychosis was confirmed. The patient was most uncooperative—making attempts to jump through the window and acting generally queer. At the suggestion of the neurologist his home life was discussed and we found that he had a son in a sanatorium who was suffering from tuberculosis and that he also had financial difficulties. We were led to believe that the collection of compensation and insurance money would materially aid him. He left the hospital much improved feeling that he had accomplished his aim. A few days later his wife called me and told me that he had been suffering from delusion, etc., and that she had him sent to Bellevue Hospital for observation, and subsequently he was committed to some private mental institution. At the time of his hearing he pleaded his own case and the physician who treated him first proved conclusively that they had found no evidence of any injury or exciting factor alleged to have been sustained by this patient.

The question of *osteo-arthritis* is a very important one. An individual sustains an injury to a joint. The question of a pre-existing condition arises. An x-ray taken immediately showing spurs and spicules of bone or osteo-chondrites will show that this condition existed at least three or four months previous to his injury. Then it is up to us to determine the amount of aggravation that has occurred.

This illustrates the importance of x-ray study in all joint and bone injuries and assists us to exclude pre-existing conditions.

The same is true with *varicosities.* We know that they are not caused by trauma. The patient may have varicose ulcers which are healed; trauma may break them down or aggravate the condition.

The question of *osteomyelitis* is now brought up. We know that following compound fractures or infected wounds that osteomyelitis is definitely traumatic. Then the question of determining the temporary and permanent effect is important.

It has been held that infection and disability following vaccination are compensable. We first have to consider what are the immediate consequences of trauma and, secondly, what chances there are of a superimposed infection in these conditions.

We know that a great many changes take place as sequels—we have inflammation; we have the skin and mucous membranes

affected, the connective tissue, muscle, blood vessels, bone and cartilage irritation and irritation of nerves. In the end-results we have scars, ulceration, neuro-vascular and neuro-trophic disturbances, fascia and muscle and ligament, as well as joint capsule and tendon strains, bursæ, cicatrices, fibroses, atrophy, myositis ossificans etc

The invisible strains are the great bugbear to the industrial surgeon. A patient will hit something and we see the patient with a postural deformity: the sacro-iliac and lumbo-sacral sprains. With sacro-iliac myositis we have something that we have to depend on the honesty of the patient to decide. It has been my practice in most of these cases we see early to hospitalize them. We give the patient the benefit of every skillful and scientific method of study. We feel that by hospitalizing the patient, doing a complete neurological examination, a Wassermann, a complete x-ray study, and taking a careful history, and watching that patient for two weeks that the surgeon should be able to tell if the patient is a malingerer or not. It is very difficult for one to malinger an assumed posture for a long period of time before those who are experienced in detecting it. We have the greatest difficulty with these cases which we do not see early. They go down to the Compensation Clinic, and they have been taught how to assume postures. They have voluntary spasm and it is a difficult problem to decide whether these patients really have an actual condition or not, but we do have scientific ways of testing the case. If the patient has a myositis or some nerve involvement certainly they do have sensory disturbances, areas of anesthesia and analgesia, but these things can be studied by a patient, and they develop hysterical neuroses and litigation neuroses.

The physician must determine the period of temporary disability. He must prognosticate the length of time the disability will continue before the injured worker can return to work, and then he must decide as to permanent disability. The next step is to determine the extent of the damage that may remain, and that is a great problem. We have many shoulder cases where a patient has a *sub-deltoid bursitis* and has some aggravation of the condition and the patient is treated. He may have a 10 or 20 per cent disability, and in our scientific effort to give him good function we give him a 70 per cent loss in that arm. Dr. Lewy has called attention to the fact that these joint conditions, especially in patients over 45, develop intra-articular and extra-articular changes and some develop ankylosis. The same thing is true with the back case: an individual over 45 may have a pre-existing arthritis—he lifts something suddenly and tears muscle and fascia—we again have a difficult problem to contend with, and I think it is of the utmost importance to get the confidence of the patient to aid us in the treatment. A great many of these patients who come to a corporation surgeon are antagonistic toward him, and I make it a point to give these patients personal attention, because of this antagonistic attitude.

Malingering usually takes two forms: The patient exaggerates symptoms already present, or he simulates symptoms which he has read about or been coached to feign. Only the other day a patient of mine who had received a head injury which was very minor, said to me "I read about a Chicago physician who stated that it was not essential for a man to have a fractured skull to have attacks of dizziness and vertigo. I feel I have the same condition."

The extent of hazardous compensation cases examined must be in part determined by the surgeon himself. At times it is almost impossible to ascertain how severe the real injury is. At times it is hard to prove to the Industrial Commission the reasons for the surgeon's opinion. An experienced surgeon can usually tell from the appearance and manner of the patient whether he believes himself to be as damaged as he claims to be. It is necessary that the patient must be examined without the knowledge of the tests that are being done.

The question of *hernia* is important. The French authorities consider the presence of omentum in the hernial sac to indicate that the condition is an old one, and therefore not compensable. Small bubonoceles point toward recent origin. In our experience about 25 per cent of the cases examined are of that type of hernia. Traumatic hernia is very rare.

In a series of 50,000 cases reported there were only about 4 per cent due to real trauma. By trauma we mean direct pressure, as where a wheel passes over the body, or there has been sufficient trauma to cause a fractured pelvis. These patients are so severely injured that they rarely recover. Dr. Kessler in his book has only four cases in a thousand, and Berger has reported only two cases in a thousand. It is my principle in deciding the compensability of hernias to follow the dictates of Dr. Lewy: 1. sudden pain in the inguinal region on exertion; 2. pain great enough to make the injured man stop work; 3. the appearance of swelling in the inguinal canal; 4. no atrophy of skin; 5. no loss of hair at site of pain and swelling. A patient who wears a truss for a long period of time may have trophic disturbances. Anatomically and scientifically we know that hernias are not caused by trauma with the exception of the direct traumatic cases. In a court of law different opinions are held. In indirect inguinal hernias one can put his finger in the ring and get the impulse coming down from the canal, whereas in direct inguinal hernia you feel the impulse coming up from below. The latter is usually small and unilateral, whereas the former is usually bilateral and more pronounced on the side of the accident. These patients are usually thin; they have a congenital pre-disposition; you can see the veins clearly standing out in the skin. They have wide dilated rings and usually an undescended testicle or a congenital defect. I think the previous speaker put it very wisely that hernia should be considered as an occupational disease, but it would be far better for these people to depend on the judgment of a specialist to say which cases are justified. I have had cases of hernia where I admitted a casual relationship which did not follow the dictates of Dr. Lewy. A man may have had an old hernia, and with some severe lift there was a direct intra-abdominal pressure or some weakening condition occurred within the sac which caused a partial intestinal obstruction. Those cases are rare, and if you go through the literature and the various laws in many states you will find *in some states, hernia is only compensable where the patient has a strangulation and has to be operated immediately*, and in other states the very evidence of the hernia is enough to give a man compensation.

We could discuss hernias for hours in relation to the predisposing factors and the anatomical factors that take place, but I do feel that we must be fair to those who are injured and show invisible strains and soft tissue injuries, and give them the benefit of the doubt. A great many times doctors are misled when a patient reports an injury to a joint or some circulatory trauma, or even in malignancy. We must bear in mind that although the x-ray specialist may report no bone pathology present, there are conditions of soft tissue injury which are more difficult to treat and restore to normal function than actual fractures or bone pathology.

L. T. Le Wald, M.D.: I do not know what percentage of Workmen's Compensation cases require *x-ray examination*, but perhaps somebody who has a statistical mind has worked that out. I should say, at a rough guess, it must be something like 70 per cent. I think perhaps for that reason Dr. Edson asked me to take part in this discussion from the standpoint of a *roentgenologist*.

I wish to call attention at once to a very important decision on the use of the x-ray in evidence. There is a decision in this State to the effect that the x-ray film is *not* to be introduced in evidence in the same way as a photograph is introduced, that, for example, a photograph carries with it its own interpretation so that "he who runs may read," but this is *not* true in regard to a radiograph. The decision in question is to the effect that an x-ray film or a radiograph *must be accompanied by an expert interpretation*, preferably by the expert roentgenologist who made the radiograph, or under whose direction the radiograph was made, and if that condition cannot be fulfilled, then the radiograph should be interpreted by another expert roentgenologist. There are many reasons for this, and I cannot help dilating a little on this fact, because I was in the Supreme Court this afternoon, and a radiograph was introduced and testified to by the attending physician, not a roentgenologist. In my opinion, his interpretation is erroneous. The doctor said that he makes his own interpretation of all radiographs. This is *perhaps* permissible, as far as general practice goes, but in a court case I think the decision as to the interpretation of radiographs should be by expert testimony only. My opinion in this respect is confirmed by the case of Marion vs. Coon Construction Company, New York, 1913, Third Division, Vol. 157, App. Div. 95. "A careful reading of all the medical evidence and the other evidence as to injuries will show that the plaintiff was substantially injured. One of the plaintiff's witnesses, Dr. Gardner, swears: 'I was present when the (x-ray) pictures were taken, saw them taken, saw them developed and looked at the plates immediately after they were developed.' Thus their identity and correctness were established. Then the doctor proceeds to tell what the pictures show. Another physician, Dr. Tinker, also tells what he thinks the plates show. There was no demand made by the defendant for the production of the plates; no hint or suggestion that they were desired. They were, in fact, in court, so the plaintiff states in his brief. I can see no error at all in this x-ray incident. The evidence shows that nobody but an x-ray expert could tell anything from the plates, and that if they had been produced they would have done the court, jury or the defendant's ordinary physicians no good. *I do not think that the doctrine that an ordinary photograph is the best evidence of what it contains should be applied to x-ray pictures. They constitute an exception to the rule concerning ordinary documents and photographs, for the x-ray pictures are not, in fact, the best evidence to laymen of what they contain. Generally they are no evidence at all, signifying nothing whatever except to the expert.*

The opinion of the expert is the best evidence of what they contain—the only evidence. If there had been a demand for these pictures in court, or a request that they be submitted to the inspection of the opposing experts, and these rights had been denied the defendant, such an error would be serious. But whatever harm befell the defendant, if there was any harm at all, came to it by reason of its own failure to demand what it was entitled to, and what it would unquestionably have received by the mere asking. To sustain this contention of the defendant would be to tolerate worse than a technicality—a trick."

There is also another important decision recently decided by the courts, namely, the question of *who owns the x-ray film.* There is an erroneous impression that when one has an x-ray film made of himself he owns the film. Such is not the case, however.

The legal decision recently rendered along this line is in accord with what roentgenologists have long contended was the correct one, namely, that *the radiograph is part of the records of the doctor,* or laboratory, or hospital where it was made, just as much as any other record. It can be subpoenaed, of course, but it is not the property of the person it was made upon. The following decision is quoted from the *Journal of the American Medical Association* of November 21, 1931.

"The question whether the roentgenograms of a hospital patient belong to the patient or to the hospital was answered by a court for the first time, so far as is known, in HURLEY HOSPITAL vs. GAGE, decided on appeal, April 21 (1931) by the Circuit Court for the County of Genesee, Michigan. The patient had been roentgenographed in the roentgenographic department of the Hurley Hospital at Flint. The usual charge for the service was included in the patient's bill. He made a payment on account, but refused to pay the charge for roentgenographic service unless the roentgenograms were delivered to him. The hospital refused to deliver them and sued the patient for the balance due. In the Justice's Court where the suit was instituted, judgment was given against the hospital. The hospital, however, because of the principle involved, appealed to the Circuit Court of Genesee County. At the hearing on the appeal, no one appeared on behalf of the patient and the case was heard and judgment rendered without the submission of evidence or argument by him."

"In giving judgment, the court pointed out that the hospital sold and *patients paid for, not the material that went into roentgenograms, but knowledge and experience.* The protection of the hospital might depend largely on the proper preservation of the roentgenograms and, said the Court, the films should remain with the hospital. Judgment was given against the patient for the balance due on his bill, covering the amount charged by the hospital for the roentgenograms." (*Italics mine*).

To illustrate one of the difficulties in interpretation which requires considerable experience I would refer to the question of whether there has been a pre-existing lesion, for example, and how much a subsequent trauma had to do with the particular lesion.

For example, a man had an injury to his knee, a moderate trauma, and when he was x-rayed it was discovered that he had a bone cyst, or a so-called giant cell tumor of non-malignant type, which was present before the trauma. An x-ray examination was made perhaps within ten days of the date of the injury, and there is no possibility that a condition of that sort could have resulted from such a recent trauma. As regards the question of aggravation, I have contended that to prove that, there should be some x-ray evidence, such as fracture of the thin cortex of the bone. Of course, if there is such additional evidence of aggravation, that certainly should be given full credit in the way of compensation.

It is very liberal and praiseworthy, but one cannot always go on compensating people in *questionable* cases. It seems to me the time will come when the State will have to be given the benefit of the doubt, and the individual will have to *prove very conclusively* that there has been an *aggravation* of an old condition. Often there is no witness to an alleged accident. It should also be proven that the particular trauma occurred while the man was engaged at his work.

Fig. 1. (Dr. LeWald's discussion). Development anomaly due to unusually prominent channels for the diploic veins of the skull. The case was *erroneously* diagnosed as due to multiple fractures of the skull

Here is another case of a pathological fracture through a softened bone. Of course, how to divide the responsibility must be a difficult question for those who have to make the decision. In some cases there is such an extensive softening of the bone that a very slight trauma may bring about a fracture, and this may occur in such a way as not to be definitely connected with his occupation.

The question has been brought up where surgical intervention takes place and an unfortunate result happens, and as the doctor previously suggested, suppose the patient had badly diseased arteries, or diabetes, and on account of that, gangrene takes place following operation and loss of an extremity or loss of life follows—how is one to decide how much resulted from the accident, and how much from the previous disease, and how much from the surgical intervention?

Dr. Edson mentioned fractures of the skull. I have shown this Society before, one or two cases of misinterpretation of anatomical peculiarities, and I will show you one more of this type (Fig. 1), and then a real fracture (Fig. 2) and you can easily see the difference.

The *spine* is perhaps the biggest field of controversy in compensation and x-ray work. Here is the type of fracture in which the transverse processes have been fractured and broken off. This condition is *not* like a broken back; it is more like a broken rib, and there is little or no danger of injury to the nerves, for example. It is the spinal cord, when that is injured, which makes a broken back serious. You can have a fracture

like this which may give the patient no disability after the length of time it will take a rib to heal, for example.

The next slide will show you a real broken back. It is this sort of thing, with the vertebrae completely crushed and the spinal cord probably compressed and injured, that is a serious problem.

I now show you examples of the fallacy of making the ridiculous request to take only *one* radiograph. Here is another radiograph of the same case, and the fracture line cannot be seen. I think this is fairly well known, and requests are not made so frequently now for the roentgenologist to take just one x-ray, as they used to be in the past. The proper way is to ask the roentgenologist for his *opinion* as to whether a fracture is present, and thus put the responsibility definitely on his shoulders. If he makes only one radiograph according to your request, and finds no fracture, you must admit the responsibility is on yourself. If later callus occurs in this bone, and somebody else radiographs the case and finds evidence of a fracture, you cannot

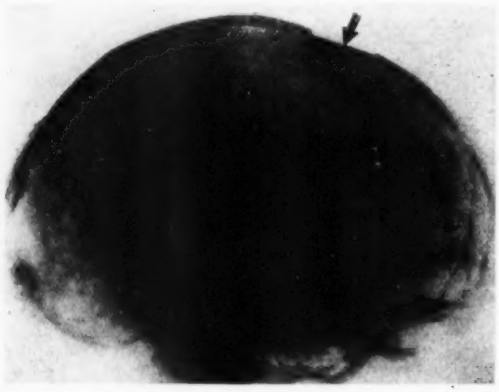


Fig. 2. (Dr. LeWald's discussion). Depressed Fracture of the skull, resulting from a brick falling from a considerable height and striking patient on the top of his head.

come back at the first radiologist and say he overlooked it, if *you* requested that only one x-ray film be made.

In this case you see the same problem illustrated, a very long fracture, knowing that it is there, and this being a sharp radiograph you can see there is a little difference in the density; there is a very slight increase in density where the fragments overlap, but one could very easily miss it. We get in the habit of thinking two right-angled views are sufficient, but even this is not always enough. I know one case, in a doctor, where two views failed to show a fracture of the lower end of the radius. He stated he was sure he had a fracture, so I took radiographs at six different angles, and finally happened to hit on the plane which showed the fracture line, so that you cannot limit the number of exposure to two.

Complications and old lesions perhaps give us the most difficulty, and this is an example of that sort. This was within a few days of the accident, and by the way, I want to stress again one point in particular, and that is the lack of evidence of an accident, and often the lack of witnesses. I do not know whether Dr. Edson will say a word about that; but this man, for example, was running a hoisting engine, and he *says* that the last thing Friday afternoon in stopping his engine he threw his arm back forcibly and hit some part of the engine. Did he go and report this right away? No. He did not report the accident, nor go to a doctor or hospital for treatment, but on Monday morning, he, or somebody for him, called up his employer and stated that he could not come back to work; that he had a bad arm. His employer told him to go to a doctor for examination. There are two things to see; one, an old condition, and then in addition there is evidence of a new fracture line, although it is difficult to tell just how long that has existed. A little detective work was done and seems to prove that this man had *injured his arm in a boxing match Saturday night.*

Dr. Edson brought up the question of malignant disease, such as *sarcoma,* following injury. This is a periosteal sarcoma which required amputation of the leg, and the patient is living after a number of years, one of the few cured cases. It followed within three weeks of the trauma, so that the x-ray demonstrates that the sarcoma is of recent origin, and it must be admitted that it was due to the trauma.

Among *occupational diseases* Dr. Edson mentioned a series of compensable conditions. I am not sure that I have them all at my tongue's end, and I hope that the State will not add any more right now, until we have given the present list a good deal more consideration, because these cases are going to be ten times more complicated to adjust than the injury cases. There was published in the *Journal of the American Medical Association* in the issue of January 9, 1932* a rather interesting case of a girl who makes salad, and who was found to have an idiosyncrasy to lettuce. Here is her photograph. It is shown that she has a reaction to lettuce, and she has been compensated for it as an occupational disease. It just shows how difficult it is going to be to prove relationship between occupation and some inherent susceptibility to a certain disease.

The next slide is that of a case that came to my office to-day. The patient had painted his skin with iodine after an injury. I thought I would use it as an illustration to show how easy it is for a person to apply drugs or irritants and *simulate occupational dermatoses.*

Dr. Edson mentioned *radium and x-ray.* Our Chairman, Mr. John West, was sitting next to me, and he said, "That is a very complicated problem, is it not, particularly in regard to x-ray?" I have had an opportunity of going over some radium cases, and I am sure the danger of handling radium, both to the medical worker and his assistants, and to the commercial worker, is a real danger, and that no doubt it is the proper thing to be put under the Compensation Law. I am not so sure, however, about x-ray. I do not know why they put it in. They probably thought it fitted in nicely with radium because they both have a similar wave length. I thought I would show you some x-ray lesions. They are quite different from radium lesions. An x-ray lesion usually means that there has been very deep destruction of tissue and results in a very serious local reaction, while with *radium* it may be a *systemic reaction, as in persons drinking radium charged water,* or as in certain workers, like the watch dial painters, who have a constitutional effect because they dip the brushes into the radium paint and point them with their lips and thus absorb the radium, so that the two conditions are not quite comparable.

The next illustration is a reaction due to *dye,* and some of these lesions due to dye reactions presumably are compensable. They are very complicated, however, due to the susceptibility of certain people to certain dyes. Before you employ a person in your fur factory, you would better find out if he is susceptible to any one of a dozen different dyes. You have got to try out the skin reactions to all the different dyes by making a sort of vaccination test for each dye.

The next case is one of an x-ray skin reaction. It resulted from trying to take hair off with the x-ray. It has been proven that you cannot do that without damage to the underlying skin, according to the statement before this Society by Dr. Howard Fox, Professor of Dermatology at New York University.

The question of *lack of sufficient trauma* to produce a certain lesion is the last point I wish to present. That is often overlooked. I have seen people interpret radiographs without ever having seen the patient or having any idea of the history, and they may make the most impossible statements at times, trying to connect up some appearance in the radiograph which could not possibly have been produced by the character of the accident to that particular individual, so that in difficult cases it is advisable to have a history of the case, and if possible, see the patient and question him and make a physical examination of at least the part of the body alleged to have been injured.

RICHARD KOVACS, M.D.: I would like to present one angle of the situation in which I have been interested for some time: that of *physical therapy* in compensation work. It is the avowed principle of the law that the workman is entitled to the best treatment and to the best possible rehabilitation after any injury. The more extended application of the physical agents, such as heat, light, massage and exercise, had its inception during and after the World War, when it was brought out that injured and diseased men could be brought back to quicker and better functional activity by physical measures. As an aftermath, industrial concerns and a few civilian reconstruction hospitals installed physical therapy departments; then some individuals specializing in commercialized compensation work discovered the value of physical therapy as the means to comfort patients, to prolong the period of treatment and to add to their revenue. Some ill use and over use of these valuable modern methods were disappointing because insurance companies received larger bills and no better results, and the workmen often wondered what all this baking and massage was good for. The Physical Therapy Committees in the State and County Medical Society, of which I have the honor of being Chairman, have repeatedly stated that physical measures are to be used only when indicated and in conditions where favorable results can be expected within a reasonable period of time, and that

* Rinkle, H. J., and Balyeat, R. M.: Occupational Dermatitis due to Lettuce, *Jour. Amer. Med. Assn.,* Jan. 9, 1932, Vol. 98, No. 2.

when so skillfully used, they must help toward functional re-establishment, or the relief of pain, or definitely help toward recovery. They should not be kept up indefinitely. In many of the commercialized clinics run by individuals and corporations, physical therapy has developed into a regular "racket". I am using this term advisedly. Men with little or no knowledge of the work have started offices with a set of glittering apparatus. I have repeatedly heard technicians and physicians who were hired to work in such places and who knew what the real work was express their contempt of the methods used, and give up their jobs.

The County and State Society for the last few years have been endeavoring to remedy this situation because we feel that if physical therapy is worth doing, it must be done right. The Medical Practice Act alone could not stop these abuses, but it is hoped that the present gentlemen's agreement with the insurance carriers will change the situation for the better. A list is being prepared of men who have shown special interest in using physical therapy and have received additional training in its safe and adequate use. Bills for physical therapy will be subject to arbitration, and no man will be able to turn in bills for a long treatment period without showing results.

Gatherings and discussions of the sort in which we have participated this evening are bound to bring about a better appreciation of the spirit of the Workmen's Compensation Act, the speedy rehabilitation of the workman without undue economic burden on the insurance carrier and in the most complete and honest way that the medical profession can provide.

GEORGE I. SWETLOW, M.D.; LL.B.: There is one angle of this situation which has particularly interested me, and that is from the point of view of the attitude that one experiences as he walks into the Workmen's Compensation building. I speak now *from the point of view of the attorney*, and at times from that of the doctor. I find this situation prevails frequently: a feeling of general hostility, hostility on the part of the insurance carrier, that he frequently starts out with the presumption that the claimant is a malingerer, and starting out with that as a presumption, the burden of proving an honest claim is then thrown upon the claimant. I feel that the carrier by that attitude is acting in a manner not conducive to the well-being of the patient. I had in mind particularly one case where, had there been a proper adjustment years ago in compensation, we would not have at this particular time a gross form of psychoneurosis going through the Compensation Court for a period of many years, because we know that as soon as the aggrieved who has received some injury gets the idea that he is being defrauded, a vicious circle is immediately instituted, and such a vicious circle is instituted that it is almost impossible to tell, when we finally appraise the damage, whether we are dealing with the after-effects of such injury, or whether we have now incorporated within it psychoneurotic manifestations subsequent to the injury. And I might say, in response to Dr. Stoloff, that the differentiation between organic disease, hysteria, and malingering is not an easy one, and I do not believe that the surgeon or compensation doctor, with the rapidity with which he functions, is in a position quickly to evaluate whether we are dealing with hysteria or malingering, because these merge into one another in such an imperceptible manner that it is only with a long period of time and patient questioning and patient examination that we are in a position to evaluate what we have. To have a report sent up from the examiner within ten minutes, giving an appraisal when we are dealing with a serious question of psychoneurosis or malingering or organic disease, is, I believe, unfair to the State and unfair to the individual.

WILLIAM STEINACH, M.D.: From the *neurological* standpoint I would like to say a few words. I can heartily corroborate what the previous speaker said in reference to the *psychoneuroses in connection with injury*. I remember a case, now before the Compensation Court, which Dr. Lewy will very well remember. A man was injured in 1923 by spilling a pot of hot grease over his arm and at the same time falling down and striking his head, sustaining a rather deep burn of the forearm and contusion of the head. For a time he was treated by his family physician and four months later presented himself at the Neurological Department of the University and Bellevue Medical College Dispensary. At that time he had an extensive scar and deep induration beneath, enclosing the ulnar nerve and causing an ulnar paralysis. Subsequently, as the organic condition got well, he developed an hysterical paralysis of the right arm; later an hysterical hemiplegia came on, which totally incapacitated him from pursuing his occupation of cook and necessitated his eking out a meagre livelihood by selling pencils. The matter came before the Compensation Court, and Dr. Lewy, being unwilling to assume the responsibility of making a decision, suggested that a *board of four neurologists* be selected to decide whether his present condition could be attributed to the injury, as he felt that it could be decided either way. The four neurologists decided in the man's favor, but the Insurance Carrier contested it and the case is now on appeal. The man is totally incapacitated for doing any but the lightest kind of work, and I think if the matter had been adequately and properly compensated in the first place, he would not now be totally disabled.

There are some neurological conditions in connection with trauma that are very difficult to evaluate. A man receives a blow on the head, and subsequent thereto suffers from headache. How are you going to determine if he really suffers from headache and if there is any causal relation to his injury? It is very difficult to do so as *headache is a purely subjective symptom;* even if a man had had a fractured skull, he may or may not have headache as a sequela and it is very difficult to determine if he really has a headache or not. A particular case I have in mind was that of a man who worked for a house wrecking company. During the demolishing of a building, a wall fell on him and he sustained a fractured skull, two or three years ago. He was taken to New York Hospital and was there unconscious for several weeks. On his discharge, he was unable to resume his former occupation on account of his headache and dizziness. As a house wrecker he was earning $1.25 per hour; under compensation he received $25 per week. According to the modern theory of the neuroses, it is an attempt to adjust to an unpleasant situation,—he is trying to get a much smaller sum through compensation than he could get were he able to resume his old occupation,—yet he is counted as a parasite trying to get compensation whose injury had nothing to do with his disability, and is a parasite on the community. Being a poor ignorant man, at first he got no compensation at all, but through the intervention of Dr. Paulsen of the Public Health Committee of the Academy of Medicine, who was investigating the workings of the Compensation Law, his case was properly presented and he was put on compensation.

Another question that presents great difficulty is the matter of a *pre-existing syphilis* and head injury with the subsequent development of paresis. A case that comes to my mind is that of a man who worked for a number of years for a cooperage company. He had always been a steady and industrious worker for fifteen years until he sustained a head injury by being caught in the belting of a machine. Shortly after, he became uncooperative, and drank so that he could no longer be retained. After his discharge, he took a position as silver polisher in the Commodore Hotel, but he was subsequently arrested for stealing silver there. He was convicted in Special Sessions, for petty larceny, and his actions exciting comment, was sent to Bellevue Psychopathic Ward, where he was found to be suffering from paresis and was sent to Central Islip, where he later died. His widow brought the matter to the attention of the Compensation Court, where the claim was allowed, but later upset by the Supreme Court.

Another rather unusual case that came before the Compensation Commission in my experience is worth citing, although it scarcely comes under the discussion. A man had worked for a laundry as a steam-fitter for a number of years, but was gradually showing signs of mental deterioration and was made a handy man about the place at much reduced pay. Later he became so demented that he was discharged altogether. It was during the war, and he worked later in a munition factory, and drank to excess. He entertained a delusion against the superintendent and going back to the laundry, lay in wait for him, and shot him in the hallway as he went home. He was tried for murder and the defense of insanity was interposed. After the case had gone to the jury, his lawyer put in a plea of second degree murder, which was accepted, and he went to Sing Sing, but the interesting point in connection with the Compensation Law was that the insurance carrier raised the question that they had not assumed the liability of an employe being *shot by an insane man*, and they appealed when the Compensation Commission allowed the claim of $16,000 to the widow and children.

Of course had this been the case of a superintendent having been shot by a discharged employee, it would have been accepted without question.

JOSEPH BEIHILF, ESQ.: I would like to correct an impression given by Dr. LeWald as to the necessity, in a court of law, of the testimony of an expert roentgenologist to support the accuracy of an x-ray picture. I do not think that there is any decision that decides absolutely that only an expert roentgenologist can attest to the accuracy of the picture taken. What is necessary, and this is what, I believe, Dr. LeWald has in mind, is that before an x-ray picture will be received in evidence, it must be established that a competent roentgenologist radiographed the same, and that the radiograph is in fact the picture of the anatomy of the injured party. Once this foundation is established, then any physician who has had any experience in reading radiographs can testify.

I was very much interested in Dr. Edson's paper and in the discussion which followed. Particularly was I interested

in the remarks made by the representative of the Legal Aid Society relative to lawyers being unwilling to take compensation cases because of the small fees involved. This is absolutely so; and I think there ought to be some means provided whereby adequate compensation should be given for the services of competent lawyers to be retained by injured employees to protect their interests before the Board. The discussion here has certainly developed the necessity for legal protection to the injured employee. If all roentgenologists had the character and splendid reputation that Dr. LeWald is known to have, no doubt would be entertained as to their expert opinions in the reading of radiographs, but, unfortunately, there are men classed as expert roentgenologists who go on the stand and who do not give honest testimony concerning what they have actually discovered. Dr. LeWald says he has met such a type and is going on the stand to-morrow to testify against such an incorrect interpretation of an x-ray picture introduced at a trial. It can thus plainly be seen how effectively a lawyer, on cross-examination, with the aid of an honest roentgenologist, can destroy the evidence of the dishonest roentgenologist on the stand.

Apropos of this, I remember an experience I had some twenty years ago in an injury case that was related to compensation, that certainly showed the necessity of a lawyer for the protection of the injured party. Under the old system, especially under the Employers' Liability Act, an injured employee was barred from compensation unless he made claim within a certain time. The failure of an employee to file his claim within the statutory time was encouraged, in divers ways, by false representations to the employee. This particular case that I referred to was the case of a man who had lost a foot through its being jammed in a butcher's icebox that had an unnesessarily strong spring for closing. Under the common law, it was apparent to me that the employee had assumed the risks of his emplopment in the butcher store, and that his only redress was under the Employers' Liability Act, where the assumption of risk was no bar. The case was tried in Brooklyn before Judge Crane who is now in the Court of Appeals. John V. Bouvier, an experienced trial man, represented the butcher, who was insured. The claim had been previously disallowed by the Industrial Commission because it was decided by them that it did not come under the 41 hazardous risks. During the time the injured man's claim was before the Compensation Bureau, he was represented only by his employer, who had stated to him it was unnecessary for him to get a lawyer as he would attend to the matter before the Bureau himself. There was no doubt as to the honesty of the employer in his representations, but the result was that seven months had expired from the time of the accident, and, therefore, the 120 days' notice required under that Act, at that time, had long since expired. On the face of it, it appeared that the employee's claim was barred under the statute. One decision, however, in our Court of Appeals was of help. It was one by the noted Justice Cardozo, formerly Chief Judge of the Court of Appeals, and now Associate Justice of the Supreme Court of the United States which, while it decided against the injured party in that case, upon the ground that the representations to the injured party not to retain an attorney were made by the representative of the insurance company and not by the employer, Judge Cardozo held that the agent of the insurance company could not bind the assured, but intimated that if the employer, viz, the assured himself, had made the representations he would be deemed to have waived the required 120 day statutory notice. I argued, therefore, in my case, upon the *obiter* of Judge Cardozo, that the employer had made the representations in question and had thus waived the statutory notice. Judge Crane held with us on this proposition, and, as the case was about to go to the jury, it was settled. The amount of settlement was not a very large one, and certainly not compensatory for the injury sustained, but we were fearful, in view of the insolvency of the butcher, that a proposition might be made to him to go through bankruptcy, for some perquisite, and thus be discharged from the payment of a large judgment that might have been obtained by the injured party. The present insurance law, however, practically substitutes the obligation of the insurance company for that of the insured in the event of judgment, and prevents any such conspiracy to defeat collection by an injured party.

WALTER M. KRAUS, M.D.: The other day, while talking to a gentleman well known in connection with this sort of work, he remarked to me: "Why do all you neurologists call all neurological cases 'traumatic neurosis?'" I replied: "I don't know why they do, but I don't."

That statement will be my text for the next three minutes.

If, when a man has been hit on the head, you approach the matter with the idea that he may have a fracture of the skull, a concussion of the brain, a concussion of the labyrinths, or is suffering from psychiatrical disorder such as hysteria, malingering, or simple anxiety, the necessity of using the very unsatisfactory term "traumatic neurosis" becomes unnecessary. A concussion of the labyrinths is very often responsible for vertigo, dizziness, and vomiting, and to a certain degree, headache. I have seen a number of such cases, but I have never had one referred to me who has been to an otologist before he has been to me. A number of them have been to an otologist after they have been to me. The reason for sending them there is that the Bárány test is an objective test that the patient cannot fake, nor can he fake nystagmus, disorders of pointing, or the vomiting which comes in doing the Bárány test.

Another thing that should be done as frequently as possible is to have *encephalograms* done whenever the head has been injured, and where a return to health has not occurred within two months. If encephalograms were done more regularly and frequently, those patients who have been coached would soon get over their malingering, if they heard of the alternative of having an encephalogram done, and the majority of those who were not malingering would be perfectly willing to have it done as an aid to finding out the trouble and its possible subsequent cure. You would probably find a good many displaced ventricles, and a good many chronic cases of moderate hydrocephalus. What we need is a careful investigation of head cases by this method, scientifically done. If the State should set aside a research fund, and appoint a committee to investigate this matter, we would soon know where it is of assistance in diagnosis, and where it is not.

The term "traumatic neurosis" is much too diffuse and ambiguous. Carriers, attorneys, as well as the officials of the State, on receiving a diagnosis of traumatic neurosis, should send the patient back to the doctor who made it, with the statement that the opinion is inadequate and that a more precise psychiatric or neurologic diagnosis must be made.

GEORGE N. EDSON, M.D.; LL.B. (closing the discussion): The discussion has been very illuminating, and there is not much I can add, except to clear up some of the points brought up.

In regard to the gentleman who said that the man's case had been prejudiced by the lack of seven months' written notice, the law reads now that if the employer had knowledge, despite the fact that the claimant did not file the claim, he will be permitted to come under the law.

Dr. Kovac's statement that physical therapy should only be used when indicated is something I am heartily in accord with. The Medical Society has been dealing with disputes between doctors and insurance carriers concerning bills for a long time. We at the Commission often have the opportunity of considering the doctors' bills, and we had one the other day that I showed to Dr. Lewy where a doctor was giving physical therapy to a man. The referee handed me a bill of $480 to pass on, itemized like this: Mondav physical therapy, thumb; Tuesday, physical therapy, elbow; Wednesday, physical therapy, back, and I spoke to the doctor who submitted the bill. He was quite nonplussed. I asked him if all this was necessary, and he said: "All he can pay is $2 a treatment, and all I can give him for that is five minutes at a time, and that is why I have him come back every day."

In reference to the x-ray which Dr. LeWald submitted showing a previous fracture of the ulna, and what appears to be a recent fracture of the radius, and the fact that the man met with the accident two minutes before closing time on Friday, and did not notify the employer, and did not come back on Monday, that is a very frequent occurrence. Injuries not infrequently occur just before closing time and three days elapse, but we all know that it is within the possibility of human frailty to get an injury one minute before closing time. That is where the importance of the first attending physician comes in, and also the importance of the x-ray. Innumerable times a man has an injury, and the false economy of the insurance carrier is not to take an x-ray, but to wait for a long period of time. Often the claimant does not appear before the Commission for one year, and then they decide to have an x-ray taken, and they want us to try to state whether a fracture of the ulna can be due to the injury a year before. I cannot fail to emphasize the value of *immediate x-ray* at the time of the injury, because the x-ray will help to clear up the examination and if there is any doubt, the medical examiner will make sufficient allowance for it, and the carrier will be requested by the Board to have the first attending physician in to say if there were active acute symptoms present at the time of the injury to account for a fracture of the radius, and if there is still further dispute, the case is sent to an impartial radiologist.

As regards the *fractures of the skull*, there is often a tremendous dispute. There are some doctors who invariably bring in a report of fracture of the skull by x-ray. There is one in particular, and we called his attention to what appeared to be

(*Concluded on page 292*)

Cancer

Department Edited by JOHN M. SWAN, M.D., F.A.C.P.

EXECUTIVE SECRETARY, NEW YORK STATE COMMITTEE OF THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER

*The Early Diagnosis of Primary Bone Tumors**

JOHN J. MORTON, M.D., F.A.C.S.

SURGEON-IN-CHIEF, STRONG MEMORIAL HOSPITAL

Rochester, N. Y.

IT is frequently possible by a careful history, examination and Roentgen ray study to arrive at a diagnosis of primary tumor of bone. Some bone tumors have such well defined Roentgen ray characteristics that it is even possible to be fairly sure of the type of primary tumor. When the lesion is small or when there is variation from the usual picture, biopsy should be done for definite pathological information. Occasionally the response to radiation will help to decide between doubtful conditions; and it is generally agreed that no harm can come from a preliminary radiation treatment while the diagnosis is still in doubt.

From the symptomatic standpoint, a history of bone pain should always arouse suspicion. If this symptom continues for any length of time without abatement, definite evidence for tumor must be sought in repeated Roentgen ray examinations. Patients with definite tumors of bone have often been treated for rheumatism over long periods of time. The diagnosis cannot be made until some evidence of destruction or proliferation of bone can be had through Roentgen ray examination. Ewing's tumor sometimes mimics acute osteomyelitis in its symptomatolgy.

The age period is also of importance. The benign exostoses, osteochondromas, and bone cysts are usually tumors of the young; also most of the Ewing's sarcomata are in evidence in the first two decades. The osteogenic sarcomata occur as a rule from 1 to 20 with 33% after thirty years and only sporadic cases in later life usually on the basis of a preceding Paget's disease or ostetis of bone. Giant cell tumor is noted most commonly from twenty to thirty years but about 33% occur after thirty.

The majority of myelomas are tumors of adult life from forty to sixty years and metastatic cancer usually comes only after forty.

Tumors noted predominantly in the male sex are Ewing's tumor which occurs in ratio of three males to one female and myeloma which almost always occurs in males. The other tumors are of about equal sex incidence.

The localization of the bone lesion is also of importance. The osteogenic sarcomata tend to occur near the extremities of the long bones not causing expansion but even narrowing of the shaft when seen early. Ewing's tumor occurs usually at the mid shaft with condensation of the bone in the beginning; it also involves the small bones of the extremities and the skull and may have multiple foci. Myeloma usually occurs in multiple punched out foci in the flat bones and skull, being a rare tumor of the central shaft when in the long bones. Giant cell tumor starts usually as an eccentric lesion at the very extremity of the long bones, involving the whole epiphysis in an expansive fashion later in 90% of the cases. Benign exostoses and osteo-chondromas occur on the diaphyseal side of the epiphyseal line. Bone cysts are also noted near the outer third of the bone but away from the epiphysis. Metastatic cancer most frequently involves the central shaft in destructive lesions of the upper portions of the long bones or riddles the spine, pelvis and skull when it is widespread.

(Numerous lantern slides were shown illustrating different types of bone lesions).

* This contribution is a part of the Clinical Conference which was held at the Sixth Annual Meeting of the New York State Committee of the American Society for the Control of Cancer in Rochester in December, 1931.

*Six Cases of Bone Sarcoma**

CARL T. HARRIS, M.D.

ASSOCIATE ORTHOPEDIC SURGEON, ROCHESTER GENERAL HOSPITAL

Rochester, N. Y.

I HAVE little to add to the résumé of the early signs of bone sarcoma as given by Dr. Morton. I wish to emphasize the importance of a careful examination, including radiographic plates and biopsy, in those cases complaining of pain located in bone. Differing from malignant tumors in many other parts of the body, bone tumors almost uniformly cause early pain, not influenced by rest—in fact, many times worse at night.

The swelling at first is slight and requires careful comparison of the two extremities to be recognized. Local heat is often present to a sufficient degree to be detected by palpation. When we see a patient complaining of pain in the region of bone, accompanied by local swelling and local heat, without a generalized inflammatory reaction, we must be suspicious of bone sarcoma, and we should use every laboratory aid to either confirm or disprove our diagnosis.

I have a few lantern slides which I wish to show to bring out one or two points in regard to the difficulty of diagnosis and the results of treatment.

No. 1.—Patient G. Age 10. White. Seen May 1, 1930, at R. G. H. Trauma (fall) on April 6, 1930—no fracture. C.c.—Pain upper end of lower leg. Tenderness over upper third of tibia—local heat. X-ray—bone

cyst, solitary. Question of osteomyelitis. Operation May 2, 1930. Cavity filled with brownish red, granular material. Curettage. Diag.—Giant cell tumor. X-ray therapy.

No. 2.—Boy X. Age 13. Seen Oct. 3, 1930, at R. G H. No history of discomfort. On Oct. 3, 1930, slight twist of ankle—pathological fracture. X-ray—Giant cell tumor. Operation Oct. 4, 1930—red granular tissue removed. Cast. X-ray therapy.

These two cases (No. 1 and No. 2) of giant cell tumor occurring in young children went on to complete recovery, following operation and X-ray therapy. I believe that in these cases we should not depend entirely upon X-ray therapy, as (1) by the roentgenograms we are unable to definitely make a diagnosis, and (2) thorough mechanical removal of the tumor tissue offers better prospects for complete recovery than radiation alone.

No. 3.—Patient S. Age 30. White. Jewish. Seen May 13, 1930. C.c.—ache and discomfort in left foot—duration 5 or 6 years—increase in symptoms recently. Slight fluctuant swelling medial to scaphoid, extending under arch of foot. Local heat and tenderness. Motions of tarsal joints limited. Operation May 20, 1930—soft, granular, pink tumor tissue, partially encapsulated. Extension through and between muscles and into joint spaces. Spicule of bone. Pathological report—Spindle cell sarcoma. Operation May 27, 1930—Amputation of lower leg. In December, 1931—Has been well to date.

There is some question in case No. 3 as to whether the sarcoma took its origin from bone or from fascia. This sarcoma is of a slow growing type which probably had not metastasized. In view of the extension through all the structures of the foot, amputation was the operation of election.

No. 4.—Patient O. Age 15. White. Seen Nov. 10, 1927. C.c.—Plain in right shoulder—slow onset—duration 4 months. Swelling began 2 months ago. Unable to sleep for past 2 weeks without morphia. X-ray—Osteogenic sarcoma. Chest negative. Operation Nov. 15, 1927—amputation—shoulder girdle. X-ray therapy. June, 1928—cough—loss of weight. June 28, 1928—died—pulmonary metastases.

Case No. 4—This enormous sarcoma of the upper end of the humerus had progressed to the point where any permanent cure could not be expected. Radical amputation, however, gave immediate relief from pain and the boy had a period of about six months of comfort before the metastases developed. I believe that such treatment is worth while, even though it is definitely understood that it is no more than palliative.

No. 5.—Patient M. Age 30. White. Seen Aug. 17, 1926. C.c.—Growth outer side of lower thigh for years. Growth inner side of thigh for 2 years—rapid increase in past 2 months. Pain at night. Outer side—hard tumor—no soft tissue reaction. Inner side—induration of soft tissue—local heat—slight tenderness. Wassermann negative. Operation Aug. 25, 1926—amputation at thigh, mid and upper third. Pathological report—Osteochondro-sarcoma. In December, 1931—Well—no recurrence.

No. 6.—Patient B. Age 18. White. Seen Dec. 3, 1924. C.c.—Pain and swelling below left knee. No history of injury. Duration 3 months. Pain worse at night. Swelling, local heat, tenderness. Motions of knee free and not painful. W.B.C. 8,800. Temp. 98.4°. X-ray—Bone proliferation. Diagnosis—Sarcoma of tibia. Chest negative. Operation Dec. 8, 1924. Biopsy. Chondrosarcoma. Amputation mid thigh. X-ray therapy to stump. In December, 1931—Well to date.

These last two cases (No. 5 and No. 6) illustrate the typical sarcomata originating near the epiphyseal line—case No. 5 being of slower onset than case No. 6. In both cases amputation has given an apparent clinical cure—one for a period of over 5 years, and the other for a period of 7 years.

Osteogenic Sarcoma•

EDWARD T. WENTWORTH, M.D., F.A.C.S.
ASSOCIATE ORTHOPEDIC SURGEON, ROCHESTER GENERAL HOSPITAL
Rochester, N. Y.

OSTEOGENIC sarcoma is a tumor growth of ancestor cells which, when normally differentiated, form osteoblasts. Just as the giant cell tumor represents an unrestrained physiologically destructive phase in bone, the sarcoma represents an unrestrained physiologically constructive phase.

From practically all groups and individuals carrying on extensive study of osteogenic sarcoma, comes implication of association between trauma and the onset of this type of blastomatosis. The great bugaboo of medico-legal controversy has, for the most part, filled our hearts with fear to express, in explicit words, unequivocal opinions. Bloodgood is an outstanding exception. He believes, himself, and states that the majority of students today are also of the opinion that injury, and a single one, may produce a sarcoma of bone. In his series of 69 cases of osteogenic sarcomata. 33% give a history of antecedent trauma. These cases extend over a number of years and were taken without any particular attempt to bring out traumatic relationship. Or, as he expresses it, "The patient remembered the injury so well in relation to the subsequent trouble, that it is recorded in the history."

In regard to the time interval between trauma and the development of osteogenic sarcoma:—

(a) Bloodgood's series: In 18% *X*-ray taken immediately after trauma showed the presence of bone lesion other than trauma indicating that the sarcoma antedated the trauma. In 47% the presence of sarcoma became known in less than six months following injury, in 18% in less than a year, and in only 17% after a year.

(b) Kolodny, who made an exhaustive study of the material of the Registry. says that the most frequent interval is about one month between the time of trauma and the appearance of pain or tumefaction; and that this interval is actually found in approximately one-third of all cases of osteogenic sarcoma.

An exact definition of trauma in this discussion is important. Certainly, *extensive* bone trauma in the form of fracture can scarcely ever be cited as the starting point of sarcoma. But, a history of mild trauma causing hemorrhage and separation of minute fragments of bone appears very frequently. It is often so vague that many find it difficult to accept as an important etiologic factor. It is certain, however, that traumatic hemorrhage and

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separation of minute fragments of bone release the potential growth ability of tissue cells so that it becomes kinetic. These physiologically accelerated regenerative processes may lead, then, to a violent multiplication of mesoblastic cellular elements which have entirely lost their main objective—physiologic repair.

It is very significant that osteogenic sarcomata may be arranged in series beginning with a mass resembling callus after fracture, and ending in a most cellular, highly malignant-looking osteogenic sarcoma. Mistaking exuberant callus and productive periostitis for sarcoma is a very common error by microscopists. There is often nothing characteristic about the cytology of tumor bone to distinguish it from inactive new bone. Exuberant callus around a fracture may look very like a tumor growth, and bone in pulmonary sarcomatous metastases may look like normal bone. Cases of osteogenic sarcoma may be identified when the bone absorption, new bone formation and the vascularity can hardly be told from callus in various stages of bone repair.

It doesn't seem at all irrational to conceive of necessity for repair as the stimulus to growth in production of an osteogenic sarcoma.

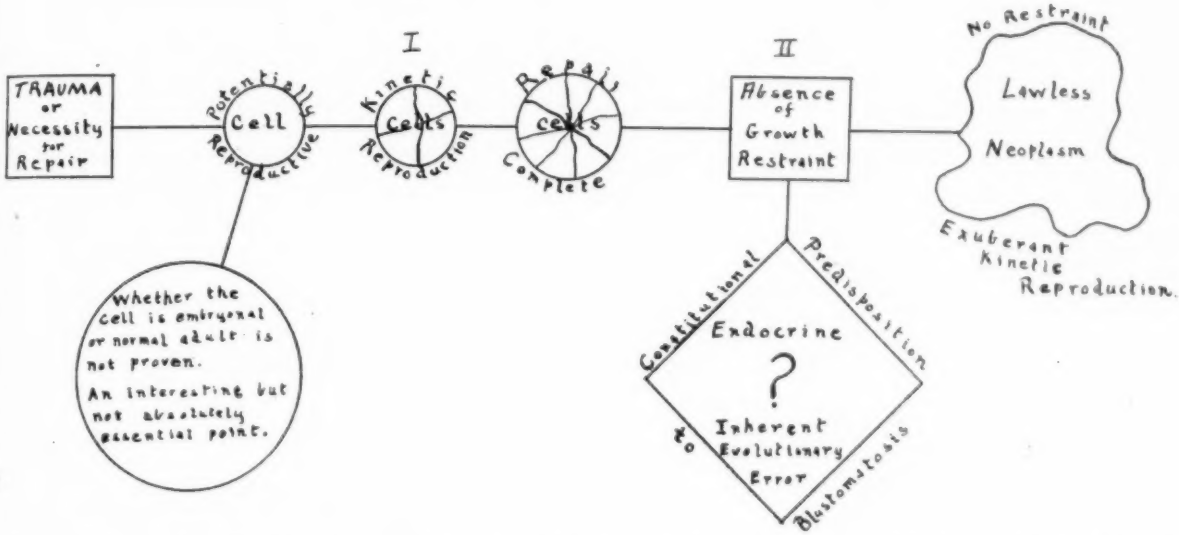
As far as I know, no progress has been made toward determining whether this cell, which by proliferation results in sarcoma, is an embryonal cell or whether it is just one of the adult cells which by proliferation results in normal repair.

It is conceivable that the sarcoma comes entirely from the re-awakening of an embryonal cell accidentally left in the region where a repair process is instituted; and that two types of cell growth go on simultaneously, the one type ceasing with completion of repair; the other continuing its lawless growth of primitive cells because of absence in sufficient strength of some very important growth restraining element such as an unknown hormone.

At this point, Adami's theory of functional inertia is interesting. "A cell stimulated to perform a certain act, not only continues to perform that act for some little time after the stimulus has ceased, but what is more, on a second occasion, a slighter stimulus will induce the like series."

There is evidence to support a belief that the parathyroids have considerable to do with bone repair. Given hypo-function of the parathyroids at this point (referring to diagram I) delayed union results. The feeding of parathormone then stimulates bone union; evidently, by the readily understood and definitely proven process of mobilizing calcium from the bones, increasing the blood calcium and making calcium available at the fracture site for callus formation.

By analogy, it is easy to conceive of another hormone which functions at this point (referring to diagram II) to restrain growth; but which has to be much more powerful to inhibit the growth of embryonal cells than that of adult cells.



Intravenous Urography

(*Concluded from page 276*

taken not to infiltrate the perivascular tissue, as all of these compounds are quite irritating.

The injection of the Uroselectan is accompanied by reactions in over half the cases, the symptoms varying from pain in the arm and shoulder to a general sensation of warmth all over the body. Occasionally nausea and vomiting occur. As a result of these reactions Uroselectan has been replaced by newer preparations, for example, Skiodan, which in my experience is practically without reactions of any kind.

Summary

I. Intravenous Urography is a very important and satisfactory contribution to Urological Diagnosis, especially in diagnosing or ruling out obstructive lesions of the upper urinary tract.

II. In cases where the secretory portion of the urinary tract is poorly outlined one must be very cautious about appraising the function; a differential function should be determined in these cases.

III. It cannot be used routinely as a substitute for cystoscopy.

IV. Its use is entirely without danger; except possibly in severe urea retention.

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* This contribution is a part of the Clinical Conference which was held at the Sixth Annual Meeting of the New York State Committee of the American Society for the Control of Cancer in Rochester in December, 1931.

Economics

The Dispensaries and a Planned Economy in Medicine

Department Editor: THOMAS A. MCGOLDRICK, M.D.

CHAIRMAN COMMITTEE ON ECONOMICS OF THE MEDICAL SOCIETY OF THE COUNTY OF KINGS, BROOKLYN

AS a result of conferences extending over many months of the Academy of Medicine, the Welfare Federatioin and the Hospital Council of the City of Cleveland a plan has been perfected for general purposes and for admissions to dispensaries. The Academy is the official County Society, and the twenty-six cooperating agencies include, with others, all the dispensaries. All patients seeking medical aid, who have at any time been under the care of a physician, are returned by the social worker to that physician. All other applicants who "might now or ultimately be able to pay something" are sent to a neighborhood doctor. That doctor will treat the patient for such fee that both agree is fair; he may treat the patient for no fee or on a deferred payment plan; or he shall refer the patient to a dispensary. There is compiled and forwarded to all the health agencies a list of doctors who have agreed to participate in the plan, with all necessary information. The working details have been completed, the chairman of the general committee is a member of the County Society, and through the clerical routine work a central registry of deserving patients will be established.

The County Society of New York (Manhattan), through its Committee, recently submitted a method whereby those seeking dispensary aid shall be classified according to their income, and only those treated who are unable to pay for the general care or special facilities of the dispensaries. Lest hardship be imposed upon anyone, the standards are elastic enough to easily permit individual modifications, modifications enumerated for the guidance of the dispensary social worker.

The Bronx County Medical Society, through its Committee, after months of diligent, patient and intelligent study, presented a report advocating the erection of six large group clinics covering the County, each to be completely equipped with laboratories and personnel, under the direct control of the Society, where for a fee which the patient could pay and which would be less than that charged in many of the *free* dispensaries for the poor, the patient would receive, from a medical member of the County Society in his neighborhood, every ordinary and special care aided by every needed instrument of precision. It was estimated that each of these group clinics would cost $150,000.

All the local County Societies have protested the departure of dispensaries from their purposes and the overcrowding of clinics, with the resultant hurried, insufficient, imperfect care received by deserving people because of the presence of great numbers who could, financially, obtain needed help elsewhere. Very few of these institutions are really free and, in these times of reduced hospital income, it has seemed as if the income from the dispensary has been too much sought. One Borough hospital is reported to net $2,000 a month from its outdoor clinic for the ambulant sick, while another has been said to earn over $50,000 profit in a year. Even the Municipal Hospital clinics, which charge nothing and which make the most perfunctory social investigation, have recently discussed the imposition of a "moderate fee." Such patients would feel no stigma of pauperization, but a sense of having properly paid.

Every dispensary head knows that it is against the spirit and law of the State of New York to conduct his institution for a profit. Every person knows, or should know, that in not one of these clinics do the doctors receive any money. The old argument that the doctor may there learn something which will later repay him is growing more attenuated by time. In no other line of human endeavor is the legally qualified worker told that the experience is sufficient for his living, and that his position must be voiceless. In some few dispensaries where the equipment is good, where the laboratories and pharmacies are complete and their facilities not dependent on the patients' fees, the attending doctor, particularly in special fields, may quickly acquire technical dexterity and occasionally see the unusual case. He should, however, be on the alert to realize the termination of the usefulness of these facilities for himself, avoid the danger of routine habits in practice there and their persistence in his life work, and pursue his subject elsewhere in more profitable ways. The young man now entering medicine with his preliminary college training, his four years of medical school and his postgraduate interneship should have still less need of prolonged dispensary service than his predecessors. The prospect of making consultation "contacts" is overshadowed by the long stay in the service with its reflection of inability to succeed in the competitive strain of private work. It has been held as an inducement that long and faithful attendance may secure the position of a numbered assistant on a hospital staff with the privilege of treating there the private patients he himself refers. Some doctors at some time, in some way, must be made chiefs of staffs, but in the meantine an increasing number of institutions are arising to which the qualified man may bring his medical, surgical and obstetrical cases.

The study and work being given by organized medicine to the subject of providing the best of medical care for all the people will be indeed beneficial. No one plan as yet proposed is complete and perfect, nor suited for all the people in all places, but by the continued attention, by trial and error, successful results will be attained. It is superfluous to add that in the meantime no person sick or in danger of sickness, though unpossessed of sufficient of this world's goods, will for that reason be refused help by any doctor in the land.

Medico-Legal Aspects of the Workmen's Compensation Law

(*Concluded from page 288*)

a developmental condition at the fronto-parietal region. He had reported fracture at the *occipito-parietal* region, and we pointed to the fronto-parietal region and asked him about it, and he stated "What I mean is fracture of the skull at the fronto-parietal region."

As I stated, the discussion was very illuminating. I hope I have aroused an interest in the Workmen's Compensation Law, and I hope to see that the doctor and attorney are adequately protected, and in the future that they will take a more active part in legislation, not only for the benefit of the employee, but also for their own benefit, inasmuch as I believe ye are a big factor in the rehabilitation of the working man.

Myxedema

Even a mild myxedema may cause mental symptoms similar to dementia praecox.

Contemporary Progress

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Neurology

Encephalitis in Children Treated With Adult Serum

E. Kramár and G. Petrányi (*Archiv für Kinderheilkunde*, 96:1, March 4, 1932) report 33 cases of acute encephalitis in children of which 12 were sporadic cases of the epidemic encephalitis type and 21 were associated with various infections, chiefly pneumonia and influenza. On the ground that the causative organisms of various types of acute encephalitis are widely distributed and that a large percentage of adults have in all probability developed an immunity by contact or latent infection, adult serum was used in the treatment of 13 of the 33 cases. From 30 to 117 c.c. of the serum was given. Of the 13 cases so treated, 2 died; of the other 20 cases 8 died. The 2 fatal cases in the serum treated group were of very severe type admitted late in the disease and died within a few hours after the administration of serum. In so small a series of cases, no definite conclusions in regard to the value of a certain form of treatment can be drawn from such mortality statistics. The results in the individual cases are of more importance. A study of the cases treated with serum showed that in four cases improvement after the injection of serum began promptly and was very rapid; the fever dropped abruptly, almost by crisis; the mental condition cleared up within a few hours; paresis and other neurological symptoms disappeared rapidly. In these cases only one injection of serum was given. Two of these cases were in a very serious condition when admitted and their response to the serum injection was most striking. In the other 7 cases that recovered under serum treatment, the improvement was more gradual and more than one serum treatment was given; the beginning of the improvement followed the serum treatment so promptly, however, that it could be definitely attributed to this procedure.

Ventriculography and Encephalography

F. C. Grant (*Archives of Neurology and Psychiatry*, 27:1310, June, 1932) reports the use of ventriculography and encephalography at the University and Postgraduate Hospitals of the University of Pennsylvania. In ventriculography the skull is trephined and air introduced directly into the ventricles; in encephalography the air is introduced by the lumbar or suboccipital route; the author and his associates have used the lumbar route. In order to obtain a satisfactory X-ray film, all the fluid that can be removed should be withdrawn before the air is introduced. The chief indication for ventriculography is increased intracranial pressure the cause for which can not be accurately localized; its use in the author's series has been practically limited to cases in which brain tumor was suspected. In the 160 cases in which ventriculography was used, the lesion was localized by this method in 93 cases; in 45 the localization was confirmatory of the neurological signs; in 48 cases it was definite in the absence of localizing neurological signs. In 21 cases in which the tumor was localized by ventriculography alone it was successfully removed. Encephalography has been used in 325 cases; it is a simpler procedure and has a wider field of application than ventriculography, but it should not be used in the presence of increased intracranial pressure, nor in elderly or debilitated persons. It has been found that the chief value of encephalography to the neurosurgeon is its negative results; the necessity for surgical intervention can often be eliminated by this procedure. While the experience of the author indicates that ventriculography is of most value for the diagnosis and localization of "mass lesions," especially brain tumor, encephalography is of value in patients without increased tension for a differential diagnosis between atrophy, sclerosis and tumor, or between traumatic neurosis and true traumatic encephalopathy, also for prognosis in epilepsy, birth trauma, or degenerative diseases. It also proved of definite therapeutic value in posttraumatic headache.

COMMENT

A really excellent article. It is timely and important. The reviewer suggests that this contribution be read in the original form to appreciate its true worth. A very considerable literature has been developed on the subject of "air injections" in the central nervous system since the pioneer work of Dandy. This has been sifted carefully and pertinently by Grant.

The experiences of Grant in the use of encephalography parallel closely that of E. D. Friedman (Int. Clinics, Vol. I—Series 40) except that the latter is more liberal, using it in cases of increased pressure with no focalizing signs with good results. Grant by contrast is distinctly in favor of the direct introduction of air into the ventricles, in cases pointing to brain tumor clinically (his figures show that in five of nine cases where the lumbar route was definitely uninforming, the ventricular approach was of definite localizing value.)

This article by Grant is clear, direct and practical. The reviewer feels that he can not bestow too much praise on this particular original effort.

H. R. M.

Basal Metabolic Rate in Epilepsy

LeG. A. Damon (*Archives of Neurology and Psychiatry* 28:120, July, 1932) reports basal metalobism tests in 350 cases of epilepsy at the Craig Colony, Sonyea, New York. In 300 unselected cases of epilepsy (150 men and 150 women), the metabolic rate was within the normal limits of plus 10 to minus 10 in 142 cases or 48 per cent; in 97 cases the rate was definitely below normal and in 45 above normal. Very little difference in the sex distribution of abnormal rates was observed, except there was a tendency for women to show a slightly larger percentage of low rates. On the basis of these findings the author concludes that probably 50 per cent of epileptic patients will show abnormal metabolic rates, and that the chances are 2:1 that the rates will be abnormally low. The percentage of abnormal rates in patients given phenobarbital did not differ from that in the untreated group. A study of basal metabolic rates in relation to frequency of seizures showed that the percentage of low rates was greatest in those having the most frequent seizures (84 per cent) and least in those having the fewest seizures per month (22 per cent). In a special group of 50 patients having remission of seizures for a year or more the percentage of low metabolic rates was not as great as in the group having even infrequent seizures. Determinations of the basal metabolic rate in epilepsy are of value, the author believes, as offering "clues as to the etiology and suggestions for treatment in selected cases."

COMMENT

It must be admitted that the whole field of successful treatment in epilepsy is wide open. Honest analysis must reveal that no conclusive attack has been made on the entire epileptic problem—similar to the definite steps, still faltering, if you wish, made in the handling of diabetes and pernicious anemia.

Statistical reports of this character are to be regarded as a important but as yet unplaced links in a long investigative chain. Work of this type is often not fully appreciated, but it is this very kind of tedious labor which may ultimately lead to the solution of medicine's most baffling problem.

H. R. M.

Roentgen Findings in Chronic Progressive Bulbar Palsy

A. C. Christie (*American Journal of Roentgenology*, 27:717, May, 1932, notes that chronic bulbar palsy should always be considered as a possibility in cases of difficulty in swallowing when the delay is in the pharynx. Roentgenological examination not only shows the site of the difficulty, but also differentiates between obstruction to the lumen and deficient muscular action of the constrictors. Such deficient muscular action may be due to pseudo-bulbar palsy in which the involvement is central, true

bulbar palsy in which the lesions are in the nuclei of the medulla and pons, or peripheral neuritis. This differentiation must be made by careful neurological examination. "The roentgenologist must rest content with calling attention to one of the above possibilities and with ruling out an obstructive lesion."

COMMENT

Usually cases of this type can be diagnosed without much difficulty by a careful examination of the neural status. Myasthenia gravis, frequently unsuspected, often presents this complaint. As patients are approached diagnostically from many angles, due in many instances to preconceived notions of the patients themselves, the roentgenologist through whose hands these patients may differ can be of considerable help in suggesting additional proper investigation.

H. R. M.

Cerebral Tumors Treated With the Roentgen Rays

P. Mathieu and M. Thibonneau (*Journal de radiologie et d'electrologie*, 16:163, April, 1932) report the treatment of 31 brain tumors, including 3 pituitary tumors, with the Roentgen rays. For these cases 200 kv. with a zinc and aluminum filter was employed. Several portals of entry were used so as to ensure cross radiation of the tumor. Two treatments of 500 R each were given in the first week, and subsequently two treatments of 1000 R weekly until a total dosage of 15,000 to 20,000 R was given in a single series. With this method no unfavorable reactions and no permanent cutaneous injury were observed. In 6 cases the tumor was partially or wholly removed; the X-ray treatment was given pre-operatively in one case, postoperatively in the other cases; in 8 cases a decompression operation was done; in 17 cases no operation was done. Of the 31 cases 5 were greatly improved and improvement maintained for a considerable period; in one other case more recently treated an equally satisfactory degree of improvement has been obtained; in another case a good result was obtained. Several patients have shown some improvement or more marked but temporary improvement. In no case was any ill effect observed. The 5 cases showing the most marked and most lasting improvement were among the 17 cases not operated, but treated by radiotherapy alone. The best results were obtained in pituitary, frontal lobe and peduncular tumors. The authors have found that the best method of preventing recurrences is to give several series of treatments, continuing the treatment after the greatest possible improvement has been obtained.

Physical Therapy

Continuous Irradiation of the Entire Body

A. C. Heublin (*Radiology*, 18:1051, June, 1932) reports a new method of Roentgen-ray treatment used at the Memorial Hospital, New York. This consists in prolonged continuous radiation of the entire body in certain types of neoplastic disease that tend to become widely disseminated. For this treatment an automatic X-ray machine is used in a special lead-lined ward in which 4 patients may be treated. In addition provision has been made for the administration to other patients of local intermittent treatments at a target-skin distance of 150 cm., using the same X-ray tube. The patients selected for the long distance radiation are in an advanced stage and many present widely disseminated lesions. This selection has been made primarily to establish a tolerance dose for the entire body, and with the hope of producing some beneficial result such as stimulation of some defense mechanism against malignancy. So far it has been found that 25 per cent of a full erythema dose of 750 R (measured in air), delivered at the rate of 1.26 R per hour, is a safe dose. The maximum dose that the entire body will tolerate has not yet been determined. With the dosage used no pronounced beneficial effects have been observed clinically, but in some instances "encouraging improvement" has been noted. If it is found possible to administer a larger dose with safety, a greater degree of improvement may be obtained. The intermittent local treatment at 150 cm. has caused definite regression of the tumor in radiosensitive growths.

The Roentgen Ray in Angina Pectoris

E. C. Samuel and E. R. Bowie (*American Journal of Roentgenology*, 27:870, June, 1932) report the use of the Roentgen rays in the treatment of angina pectoris in 19 cases. In most of these cases the following technique was employed: Kilovoltage 140; milliamperage 5; distance, 20 inches; filtration 0.25 mm. copper plus 1 mm. aluminum; time eight to ten minutes; this gives a dosage of approximately 150 R. In the first 3 cases a somewhat heavier dosage was used. The radiation is applied as a rule to the left side of the anterior chest, and sometimes to the back also on the left side. Such treatments are given every two weeks until four treatments have been given or until the symptoms are controlled; then treatments are given at intervals of six weeks to two months. The cases treated showed varying degrees of severity, but they tended to be of the more severe type with rather frequent recurrences; all had failed to respond to the usual methods of treatment. Of the 19 patients treated, one has died from an intercurrent disease after experiencing full relief from the attacks of angina. The other 18 patients are living and well satisfied with the results of treatment, being completely or nearly completely relieved from their attacks of anginal pain and able to resume their usual activities.

Reaction of the Skin to Ultra-Violet Light

H. Goodman and H. S. Abel (*American Journal of Physical Therapy*, 9:44, May, 1932) report studies of the skin reactions produced by the mercury vapor lamp with the hot tube and the cold tube. The cold tube gives off 90 per cent of its emanations at 2,537 Angström units; the hot tube gives off emanations in wave lengths at 3.025, 2,975 and at 2,800 Angström units; its radiation at 2,537 is relatively weak. In this study new clinical models of both the cold tube and the hot tube were used. The model of the cold tube was in the form of a grid to be used as close to the skin as the hood of the apparatus would allow, about 5 inches. The hot tube model was the most recent model of the super Alpine; the emission tube was kept at 20 inches from the skin. The same patients received treatment with each lamp on symmetrical surfaces of the skin. The duration of the application was the same with each lamp. The reactions were studied at forty-eight hour intervals. At forty-eight hours it was impossible to distinguish any difference in the two areas of erythema. At ninety-six hours scaling had begun, and there was a definite distinction between the two areas. On the cold quartz side, the skin underneath the scales was the same color as the surrounding skin; on the hot quartz side the skin was wrinkled and drawn with redness fading under pressure. In cases of pityriasis rosea, the therapeutic results seemed to be equally good with either tube. In acne vulgaris results were better with the hot tube; in lichenification results were better with the cold tube. This is to be explained in the case of acne vulgaris by the fact that this lesion is not superficial but involves the follicle and the hot quartz emanations penetrate into the corium and ameliorate a follicular lesion. On the other hand in lichenification, the hot quartz emanations tend to intensity the symptoms that cause itching, while the cold quartz does not "add insult to injury" and thus gives symptomatic relief.

Sinusoidal Currents in Gastro-Intestinal Stasis

L. M. Otis (*American Journal of Physical Therapy*, 9:103, July, 1932) reports the treatment of cases of gastro-intestinal stasis with various physiotherapeutic measures, particularly the sinusoidal current. The ultra-violet light is used in some cases to build up the blood and for its general tonic effects. Autocondensation treatments are generally employed to remove venous congestion and improve the circulation. Sinusoidal treatments are given at first twice daily for two or three weeks; at this time patients leave the hospital and treatments are then given three times weekly down to once a week. X-ray studies with the barium meal have shown that in cases of gastric hypomotility and retention, the sinusoidal current produces deep peristaltic waves; after two or three weeks of daily treatments the emptying time of the stomach is greatly reduced. In cases of intestinal stasis, X-ray studies with the barium enema show that the application of the sinusoidal current stimulates the peristalsis; the contractions are deeper and more frequent and the barium is "sent along in spurts." Where the barium previously showed a pause or failed to pass the flexures, it passed readily under the stimulation of the sinusoidal current. Illustrative cases are reported showing permanent relief of gastric and intestinal stasis and of the resulting toxemia by means of regular treatment with autocondensation and the sinusoidal current or by the latter alone.

Bordier's Treatment of Poliomyelitis

L. Tixier and G. Ronneaux of the Charité Hospital of Paris (*Journal de radiologie et d'électrologie*, 16:157, April, 1932) report the use of Bordier's method in the treatment of acute anterior poliomyelitis. This method uses three modalities of physiotherapy: Roentgen-ray irradiation of the spine at an early stage, soon after the cessation of the fever; diathermy treatment of the extremities that show a lowered temperature, alternating with the radiotherapeutic treatments; subsequently the use of the galvanic current to overcome atrophy and stimulate movement. The authors' results with this method have been very satisfactory; they have obtained definite improvement in a number of cases that failed to respond to any other method of treatment; and they have noted that this improvement began when the Bordier treatment was instituted. In their opinion the Roentgen-ray irradiation is an important part of the treatment, because of its specific action on the spinal cord lesions.

Infra-Red Radiations

Leonard Hill (*British Journal of Physical Medicine*, 7:49, June, 1932) reports a study of the effect of the infra-red rays on the nasal mucosa. His attention was called to this by the observation that certain infra-red radiations increased the difficulty of nasal breathing in persons with deflected septum and other types of nasal obstruction, and that other infra-red rays did not have this effect. This indicated that some of the infra-red rays caused congestion of the nasal mucosa and others did not. It was found that dark and dull red sources of heat had this congestive effect, but bright sources (incandescent lights, open fires, etc.) did not. A careful study of the infra-red spectrum showed that the rays that kept the nasal passages open, preventing congestion, were in the region of 25,000 to 30,000 A. U.; when these rays were of insufficient intensity, the other infra-red rays exerted the congestive "nose-closing" effect. The effect of the rays was rapid in onset, and was due to reflex action. In addition to the rays from bright sources of heat (25,000 to 30,000 A. U.), other agents were found to inhibit the congestive action of the other rays of the infra-red spectrum on the nasal mucosa, such as currents of cool air, vapor rising from cold or tepid water placed below and in front of the source of the rays, and glass.

Public Health Industrial Medicine and Social Hygiene

Public Health Aspects of Frozen Foods

C. R. Fellers (*American Journal of Public Health* 22:601, June, 1932) reports a study of frozen foods in the public health aspects. From his own investigations and a review of the literature he comes to the following conclusions: Frozen food factories are clean and modern methods of sanitation are used. The quality of the raw products is high, and if the freezing is prompt and rapid, and the foods kept in storage at low constant temperatures, there is little or no deterioration in quality, appearance, or nutritive value. Fish, meat, poultry and eggs are especially well preserved by freezing, and retain their fresh appearance, flavor and character better than fruit and vegetables. The author's study of the bacteriology of frozen foods showed relatively small numbers and few varieties of bacteria; tests for *B. coli* were negative. Though the initial "bacterial population" of the frozen foods was small, a rapid increase occurred within a few hours after thawing. Emphasis, therefore, must be placed on the prompt utilization of frozen foods after defrosting; spoilage occurs rapidly. Little change occurs in the chemical, enzymic or nutritive properties of frozen foods; hence the availability of a large variety of such foods at all seasons will serve to give variety and balance to the human diet and should aid in decreasing deficiency diseases.

Control of Tick Borne Diseases

N. Toomey (*Annals of Internal Medicine*, 5:1513, June, 1932), discusses the measures of control of tick borne diseases and especially of Rocky Mountain spotted fever, used in Montana. These include rodent destruction measures, dipping of live stock, quarantining of stock and dragging for ticks, the introduction of tick parasites, and the use of a vaccine for spotted fever. The rodent extermination methods include the use of poison applied to the land where the rodents have their burrows. The loss of live stock resulting from this measure is small, and farmers are compensated for what loss does occur; and this method is very effective as it kills a fair percentage of immature animals before they have opportunity to breed. The vaccine for immunization against Rocky Mountain spotted fever is prepared by the U. S. Public Health Service at Hamilton, Mont.; about 25,000 persons in Montana and other states were inoculated with the vaccine from 1925 to 1931 inclusive. A comparison of the incidence of Rocky Mountain spotted fever in the Bitter Root Valley, Montana, in 1913-16 with that in 1927-30, when the methods of control were in operation, shows a reduction of nearly 75 per cent. As 76.81 per cent of cases of spotted fever have been fatal in this area, this represents a very definite saving of human life. To the known saving effected in relation to spotted fever should be added the diminished incidence of other tick borne diseases.

Erysipeloid A Disease of Industry

J. V. Klauder (*Journal of Industry Hygiene*, 14:122, June, 1932) has made a study of erysipeloid as an industrial disease. He finds that this infection among industrial workers has received little attention, and it is generally not recognized as an industrial disease. The bacillus of swine erysipelas is, however, widely disseminated and its habitat is living or dead matter of animal and plant origin. The infection occurs at the site of injury in workers in various industries coming in contact with such matter. The infection is common among commercial fishermen working in fishponds and handling live fish, especially in those handling spiny and slimy fish. Spiny fish cause trauma of the hands which serves as a means of inoculation of the infection. In all probability the organism is a saprophyte on the slime of fish. The disease is an important one in the fishing industry. It occurs also, but to a lesser extent, in the meat packing and canning industries, among food handlers, and among workers in industries where living or dead animal matter (such as bone) is handled. An outbreak among employees in a bone button factory (using cattle bone) is noted. Industrial erysipeloid is apparently much less widespread and less severe in the United States than in Germany, except among fishermen handling live fish. The mild form of the infection most common in man is that similar to the mild form of the disease in swine—a localized cutaneous infection, appearing in industrial workers on the hand at the site of injury. The erythema appears at this site and progresses slowly; it is sharply defined and slightly elevated and has a distinctive purplish-red color, "unique among skin diseases." Another distinctive feature is its migratory nature, patches of erythema appearing at remote areas. The disease rarely extends above the wrist. The acute septicemic form and the arthritic form are rare in man. Various forms of local treatment have proved unsatisfactory. The author has found local injection of specific serum most satisfactory. A serum has been prepared from strains of the organism isolated from cases of the disease among fishermen. The serum is administered by multiple punctures around the lesion, 5 to 10 c.c. being injected. It causes a local reaction, but in the author's experience no serum sickness. The lesions disappear within a few days and the period of disability has been much reduced in the author's cases by the use of the serum.

Social Hygiene and Unemployment

C. G. Heyd (*Journal of Social Hygiene*, 18:321, June, 1932) points out that periods of economic depression and unemployment have a definite effect on the incidence of venereal disease by their effect on living conditions, causing overcrowding with its increased opportunity for contamination and lowered standards of personal hygiene and morals; also by increasing the number of women entering prostitution as a means of livelihood; and by the lack of adequate medical attention resulting from lack of employment and reduced income. The author's study of a group of physicians in New York City whose practice was confined to venereal disease showed that their practice had fallen off 40 per cent. in 1931 as compared with 1928. There has been an increase in the attendance at venereal disease clinics in the City in this period, but not sufficient to account for the loss in the practice of private physicians. Inferentially there must be at the present time in the city a large number of untreated or incompletely treated cases of venereal disease, as well as a large number in a state of active infectivity. Medical relief in times of economic distress, "including the emergency care of syphilis and gonorrhea," the author believes, "should be accepted as an obligation of the community as fully as measures for provision of food and shelter"

Gonorrhea and Syphilis in Massachusetts in 1931

N. A. Nelson and G. W. Anderson (*New England Journal of Medicine*, 206:882, April 28, 1932) note that for two years, 1930 and 1931, gonorrhea and syphilis have been directly reportable to the State Department of Health in Massachusetts instead of to local boards of health. In 1931, 1092 physicians, 26 clinics and 100 hospitals and institutions reported 7201 cases of gonorrhea and 4447 cases of syphilis, an increase over 1930 of 227 cases of gonorrhea and 250 cases of syphilis. During the two years 1499 different physicians have reported one or both diseases, about 25 per cent of the physicians in the State. The smaller communities continue to have relatively much lower case rates for both diseases, but increases over 1930 rates were almost entirely in the small cities and towns. The percentage of cases reported by physicians was 2 per cent less for both diseases in 1931 than in 1930; the percentage of cases reported by clinics showing a corresponding increase. Whether this is due to the present economic situation or to carelessness of physicians in reporting cannot be determined. Migration of patients to "out-of-town" physicians and clinics increased from 24.7 per cent in 1930 to 27.3 per cent in 1931. The ratio of reported male to female gonorrhea was 3.75 to 1 in 1931; 3.02 to 1 for 1930; the ratio of male to female syphilis in 1931 was 1.44 as compared with 1.43 in 1930. About two-thirds of males and approximately half the females with gonorrhea or primary syphilis were single. In both years a study of the age incidence shows a marked predominance of both diseases in the younger groups with the females becoming infected much earlier than the males. There were 2968 cases reported by name as having discontinued

treatment prematurely or as "sources of infection;" only 47.7 per cent of these patients could be found; nearly 69 per cent of the cases of gonorrhea could not be found.

Economic Aspects of the Management of Syphilis

A. Kreidel (*Archives of Dermatology and Syphilis*, 25:470, March, 1932) suggests that the cost of the diagnosis and treatment of syphilis is a major factor in the inadequate control of the disease. In most American cities treatment facilities for syphilis are available only in free or part-pay clinics, or in private practice. Many patients of "the moderate income class" are inadequately treated because they cannot afford to complete the necessary treatment with a private physician, and will not accept the alternative of available clinics. The author is of the opinion that properly regulated pay clinics will best meet the needs of this class of patients and ensure the adequate treatment of their disease.

Ophthalmology

Endothermy in Detachment of the Retina

S. Larsson of Stockholm, Sweden (*Archives of Opthalmology*, 7:661, May, 1932) reports the use of electro-surgery (endothermy) in 40 cases of retinal detachment since 1930. The aim of the treatment is to establish a wide adherence of the detached retina to the underlying tissue; exact localization of the hole is not necessary. The conjunctiva is detached at the corneoscleral boundary and stripped off over an area corresponding to the extent of the retinal detachment. The globe is carefully exposed; bleeding is controlled by endothermy with an active needle electrode. For the actual endothermy treatment a ball electrode is used as an active electrode; a weak current is employed, not exceeding 100 to 150 ma. The electrode is brought into full contact with the exposed sclera for at most five seconds at several points a few millimeters apart; no area within 8 to 9 millimeters of the limbus is treated. The sclera is then trephined within the treated area and the escaping fluid or vitreous humor washed away with physiological saline solution. There is no bleeding owing to the previous endothermy treatment. The patient is kept in bed with both eyes bandaged for two weeks; with the head so placed that the detached area lies inferiorly as far as possible. If the result is good, the patient is kept in bed another week or two without bandage. The eyes usually tolerate the operation well and as a rule no serious complications have occurred. Any vitreous opacities that may develop clear up later. In the series of 40 cases, there were 20, or 50 per cent, in which the results were good. But the series included several severe cases which the author believes should not have been operated. Excluding such cases, there were 33 cases that should be considered operable, with 20 successful results, or 60 per cent. The author considers that the operation has certain advantages over Gonin's operation: It creates a more extensive adherence between the retina and the choroid with less likelihood of recurrent detachments; bleeding rarely occurs on account of the coagulating effect of the current; the searing instrument is not introduced into the vitreous humor and no cicatricial plug develops; the operation is less difficult and does not require the precise localization of the hole.

L. Genet (*Annales d'oculistique*, 169:381, April, 1932) also reports the use of endothermy in the treatment of retinal detachment, in 3 recent cases. In these cases he found it impossible to locate the hole, and applied the coagulating current to the most projecting part of the retina. The Heitz-Boyer diathermy apparatus was used, with a large indifferent electrode at the patient's back, and an active needle electrode. The active electrode was inserted a depth of 2mm. underneath the most projecting portion of the detached retina before the current was turned on; then the current was turned on for two seconds. A light coagulating current was used. There was a slight inflammation of the conjunctiva lasting a few days, otherwise no reaction. In all these cases complete reattachment of the retina was obtained, but the cases have been treated too recently to determine end results.

Ocular Fatigue

C. Berens and E. K. Stark (*American Journal of Opthalmology*, 15:527, June 1932) report a study of the effect of lowered oxygen tension, simulating high altitude, on the Duane nearpoint of accommodation in 165 men physically qualified for the Air Service of the United States Army and 14 men disqualified for this service. It was found that under low oxygen tension 45 per cent of the qualified men and 64 per cent of the disqualified men showed a more rapid recession of the nearpoint than under normal oxygen tension. After testing 600 aviators it was found that subjects who met the ocular requirements of the Air Service in regard to accommodation, vision, muscle balance and muscle strength, including nearpoints according to the Duane standard for age, showed a marked circulatory or psychological disturbance under low oxygen tension before there was any serious disturbance of accommodation, so that determination of the nearpoint of accommodation under low oxygen tension is not considered essential as a test for aviators. In a study of accommodation fatigue in 195 office patients, most of whom were asthenopic, by means of ophthalmic ergographs 5 and 6, it was found that in time limit set, ten to fifteen minutes, 28.7 per cent showed increase in the amplitude of excursion; in 40.5 per cent the excursion of the test object remained constant; and in 30.8 per cent there was a recession of the nearpoint and decrease in the amplitude of excursion. Thus 69 per cent of the records showed no evidence of accommodation fatigue. A high positive correlation was found between objective evidence of accommodation fatigue as manifested by decreased amplitude of excursion and the subjective evidence of accommodation fatigue manifested by constant blurring of the test object and by the differentiation tests, indicating that the fatigue is accommodative rather than retinal. There was no close correlation between the accommodation nearpoint according to the Duane standard for age, and the tendency to accommodation fatigue in the ergograph test. Hence the Duane standard cannot be accepted in the authors' opinion as a final criterion of ability to concentrate without rapid fatigue. In the ergograph test, general fatigue becomes a factor after fifteen minutes, so that as a rule the test should not be continued for a longer period, as a fifteen minute test will usually indicate what patients suffer primarily from accommodative asthenopia. As far as possible tests should be made with right, left and both eyes, as marked differences are sometimes found in these three records.

Is There a Diabetic Retinitis in the Absence of Renal Changes?

E. Bessiére of the ophthalmologic clinic of the University of Bordeaux (*Archives d'ophtalmologie*, 49:219, April 1932) reports 23 cases of diabetic retinitis from his clinic and presents a review of the literature. In his own series, 5 patients showed increased blood pressure, the others more or less marked symptoms of renal insufficiency. He finds that retinitis in diabetic patients appears most frequently between fifty and sixty years of age in cases of diabetes of long standing and of a mild type. Control of the diabetes by diet and insulin does not as a rule affect the retinitis. The characteristic eye lesions in diabetic retinitis are hemorrhages and white spots (exudates), which, he notes, are also characteristic of the earlier stages of nephritic retinitis. If papillary edema is less frequent in diabetic than in nephritic retinitis, it is because the renal lesions are less advanced, the author believes. On microscopic examination, the lesions of diabetic retinitis also closely resemble those of nephritic retinitis; the lesions are situated in the posterior pole of the retina; and the blood vessels, especially the capillaries, show marked pathological changes. The evidences of renal insufficiency in diabetics with retinitis may be so slight that they are overlooked unless carefully sought for. The author believes, however, that if retinitis develops in a diabetic who shows no albuminuria, it is evidence of a beginning renal insufficiency.

Blood and Spinal Fluid in Primary Glaucoma

M. Cohen, J. A. Killian and L. Halpern (*Archives of Ophthalmology*, 8:39, July 1932) report a study of the chemistry of the blood and spinal fluid in 14 cases of primary glaucoma and 10 controls with ocular disease other than glaucoma. Of the glaucoma patients 9 had glaucoma simplex, 2 absolute glaucoma, and 3 primary inflammatory glaucoma. In all, the intra-ocular pressure was abnormally high and the visual fields were typical of glaucoma. It was found that in the glaucomatous cases the plasma and spinal fluid proteins, sugar, chlorides, calcium and sodium were essentially the same as in the control cases and within normal limits. The inorganic phosphorus of the spinal fluid was somewhat high in glaucoma in relation to that of the blood, although the variation from normal was small. These findings indicate that there is no disturbance of the blood or spinal fluid chemistry that is characteristic of glaucoma. Especially, no evidence of a disturbance of calcium metabolism and diffusibility was found.

The Hyaloid Membrane of the Vitreous

A. Cowan and W. E. Fry (*American Journal of Ophthalmology*, 15:428, May, 1932) have previously described a membrane separating the aqueous from the vitreous chamber seen by slit lamp examination after cataract extraction. They have recently made a further study of the membrane in normal animal and human eyes obtained at postmortem. From this study they conclude that there is normally a "non-nuclear, structureless, uniformly staining membrane" which completely separates the aqueous from the vitreous chamber, and is in contact with the posterior lens capsule. This membrane may be designated as the anterior hyaloid membrane of the vitreous.

Medical Times

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Rest the First Remedy

Life is a manifestation of specific energy which has been stored up in the forms of matter known as living tissues. As this energy is released it receives increments of force from the outside which the living tissues utilize in specific ways. These tissues have not an inexhaustible supply of intrinsic energy, nor can they continue indefinitely to utilize the energy received from the outside. They wear out or run down, and eventually, as we say, die.

Living tissues, including in that term single living cells and the associations of living cells, which in their most extensively elaborated form are exemplified by the human body, may have the regular course of their life activities disturbed by derangements (damage, disease, disorder) of their structures or functions. In the presence of such derangements the living cells singly and in cooperation are able to call into action an inherent capacity which they possess for restoring their structures and functions to normality. The special activities necessary to effect this restoration operate while the activities which constitute the regular functions of life are going on. It is a matter of a priori reasoning as well as practical observation that the operation of this reparative function is favored by a temporary reduction below the average level of regular life activities, that is, by giving the deranged functions a certain amount of rest.

This therapeutic rest may be described generally as of three kinds, mechanical, nervous and metabolic. Mechanical rest means muscular rest or rest brought about by diminution of movement of the body or its parts. Nervous rest includes mental and emotional rest, and means more sleep, less excitement, less responsibility, less worry, less mental work, less play, sometimes more play, sometimes change of scene or occupation, and sometimes the use of sedative or anodyne drugs. Metabolic rest means mostly an easier diet.

Rest is a primary, a fundamental remedy, which is required to a greater or less extent in the treatment of all bodily derangements; and in many of these derangements it is the only remedy needed. It has particular indications and doses, and these it behooves the physician to learn.

E. E. C.

Vaccines After the Removal of Focal Infection

When infected teeth and tonsils are removed in adults it often requires from one month to a year to repair the damage already done. Very often if a tooth or tonsil is causing a specific condition, the removal of the focus is followed by an increase in the symptoms. For some time the writer has been employing a stock vaccine of streptococci and staphylococci after the removel of these foci, beginning soon after the operation and continuing for some time afterward. While it is difficult to ascertain the results, it seems that this procedure warrants a continuance because the symptoms seem to clear more rapidly under this treatment. Thus, in certain cardiac irregularities, gastric and duodenal ulcers, nephritis, cystitis, cholecystitis, joint conditions and many other states, the use of the streptococcic combined vaccine seems justified following the removal of focal infection.

M. W. T.

Postvaccination Encephalitis

Several cases of postvaccination encephalitis have been reported. Armstrong (*U. S. Public Health Reports*, July 22, 1932) has made a study of this condition and submits several suggestions looking to prevention. The first precaution is a suitable vaccination technic, a small superficial insertion, never over one-eighth inch in greatest diameter, and no routine dressing. Apparently infancy is the best time for vaccination from the point of view of prevention of postvaccination encephalitis. Armstrong suggests that primary vaccinations be delayed until contemplated immunization against diphtheria, for there is a possibility that inoculations with diphtheria toxoid may render primary or secondary vaccinations more mild and may have some influence on the prevention of encephalitis following vaccination.

M. W. T.

A Discreet Press and an Apparent Paradox

The newspapers are frequently accused of keeping up the psychological depression of the present period by publishing all sorts of dismal news. The answer to this charge is, of course, that they don't publish the most dismal news; discretion is practised here, just as in ordinary times the numerous atrocious crimes against children are not made the subject of public discussion by the press, nor names bruited abroad. So far as we know, the press takes no undue advantage of the opportunities just now offered to play up such things as the poisoning of children seeking to live on decayed food picked up in the streets from garbage cans. Conditions in the country are worse than one would infer from the press; and yet it is alleged by certain statisticians that the general health of the industrial population has

reached its highest level. One finds, however, when one looks into their methods of compilation, that this claim is based upon mortality experience. The death rate has dropped, therefore the people are healthy, which obviously is a non sequitur. Any doctor who is not deaf, dumb or blind knows better. And it is admitted by these same statisticians that there is an increase of death rates for cancer, heart disease, cerebral hemorrhage, chronic nephritis and diabetes.

It would be a paradox indeed if it were true that along with wretched social and economic conditions the general health of the people had reached its highest level. The only paradox we can descry on the horizon is a greater ability than has hitherto been shown, on the part of poorly conditioned people other than the degenerative-disease group, to live longer; people who, from former medical standpoints, ought to die, just keep on living; and it is these wretched creatures whom the statisticians would have us believe represent a high level of health—upon which our considered comment is: nonsense.

The General Practitioner Gets a Break

When a patient goes to a hospital for an operation there is usually enough to pay the surgeon and hospital but the family doctor gets nothing. He is expected to be at the operation and call on the patient but when it comes to a fee he is out of the picture.

The Medical Society of the State of New York has made a new ruling which will help the general practitioner. The total amount which is available for professional services may be shared by all the medical attendants on the case. This does not mean a division of fees and the general practitioner must actually do some work and he is paid according to what he does. The patient, of course, must know about it.

This is a graceful way out of a difficult situation. After all, the general practitioner must be considered.

M. W. T.

A Eugenic Superstition

Henrly Fairfield Osborn, one of the country's most famous scientists, writing in the August *Forum*, pleads ably and eloquently for birth selection versus birth control. He says, speaking of birth control: "Especially in the hands of its chief propagandist in this country, Margaret Sanger, it is fraught with danger to society at large and threatens rather than insures the upward ascent and evolution of the human race." It is the "best" strains that are threatened by birth control, which, like a two-edged sword, is thought to be eliminating alike the fittest and the unfittest, and so, as regards the former, to be dysgenic in effect.

It is probably the so-called fittest who resort to abortion with greater relative frequency, and it is the abortion factor, rather than the contraception factor proper, that is effecting biologic carnage. For practical purposes, contraception must be thought of as implying much abortion, since contraception of itself, as now applied, is pretty much humbug. In any case, the resultant decimation may be called birth control, and that is what is in Professor Osborn's mind.

Professor Osborn is wholly correct in claiming that the so-called better classes are menaced in the fashion indicated, but some writers' assumption of a hereditary eugenic aristocracy within the alleged better classes (the Galton doctrine) does not arouse our enthusiasm at all. Genius, which is the source of all our progress, does not derive from the "best" strains; high talent, of course, may and does. Genius derives from so-called bad stock, as Christianity germinated in the slum proletariat of the Mediterranean cities. That so-called bad Christian stock was really good stock, hatching great saints and scholars and artists. The stock of genius, in the words of Emerson, is like the oyster which, wounded, mends its shell with pearl. Genius as manifested in creative works of beauty and unique spiritual or mystical or intellectual significance and power is a refuge alternative to more seemingly tragic havens, open to the potentially neuropathic who are so constituted congenitally as to be able to avail themselves of it. Neurotic perdition is thus dodged. Genius, then, is this particular type of reaction to life. For such an individual each one of these alternative reactions is no more and no less a *via crucis* than the other, which explains the traditional "thin wall" between genius and insanity.

Needless to say, Professor Osborn's "best" strains suggest no neuropathic connotations, but only an especially powerful urge, resting upon good energy endowment and the formation of certain trends and psychic patterns in childhood, to attain success and prestige in the present world of reality—an urge conditioned by the degree of immediate desire for self preservation.

Of course, we don't wish birth control (contraception plus abortion) to menace either that which we owe to the eugenic aristocracy or to the strains that beget genius. But Professor Osborn need not trouble himself so grievously over the multiplication of the "unfit."

Economics and Malignant Disease

Commentators upon the depression have at last hit upon a pretty formula to explain both the economic disaster and the failure to produce remedies. They are saying and writing that a depression is just like cancer. It is no reproach, exactly, to the doctors that they cannot wholly master malignant disease. It cannot be denied that they know a great deal about it. So the economists, too, though well informed, are unable to master the depression and are no more to be blamed than the doctors are for not wiping out cancer.

We leave to the reader the detection of fallacies in this line of argument.

Certified Milk in Our Dietaries

All our professed interest in nutrition is pretense if we fail to insure milk its proper place as an essential in the dietaries of all the people.

The use of milk has decreased in these trying times, but the medical profession must do its utmost to see that its consumption is restored to normal amounts.

The certified milk industry in particular must be sustained by the physician, whose guidance in nutritional matters is surely as vital as in the prescription of medicines, operations and physical therapy.

For the certification of milk unquestionably insures safety and the highest nutritional standard.

L. I. News and Notes

The Autumn Meeting of the Associated Physicians of Long Island

The Associated Physicians of Long Island have been invited to hold their regular fall session at Mitchell Field, the airport in Nassau County.

The medical side of aviation will be presented symposially by several of the leaders in that line. The date is expected to be in the first half of October. Further particulars of this timely program will be supplied later.

An Eminent Medical Librarian Retires

"Mr. Charles Perry Fisher, who has served for fifty years as Librarian of the College of Physicians of Philadelphia, has retired."

—so reads the brief news item sent to us under date of June 30th.

Fifty years of continued service in one of the great medical institutions of our country and a life's work rendered in behalf of the educational advancement of medical science, deserves more than passing notice.

When Mr. Fisher began his duties with the College of Physicians of Philadelphia in 1882, its Library comprised less than 25,000 volumes. Through his enthusiasm, devotion, energy and ability it has grown to a collection of 166,706 volumes. Housed in a magnificent Temple of Medicine, this Library has gained the honorable and enviable recognition of being one of the finest and most complete medical libraries of the world. The place it has attained has been largely due to the zeal of its able and most amiable administrator. The Library and its Librarian have been an inspiration and influence in the development of medical libraries in our country.

Mr. Fisher has been a pioneer in introducing new ideas and methods in library procedure.

He, with Doctor William Browning and a few others, in 1898, founded the Association of Medical Librarians, now our national Medical Library Association, and he has always been looked upon as the "grand sachem" of our tribe.

Mr. Fisher's influence is bound to us on Long Island more intimately than many are aware. Our Librarian of our own Library of the Medical Society of the County of Kings, Mr. Charles Frankenberger, is a protégé of Mr. Fisher's, having received his early training under him as a member of the staff of the College of Physicians of Philadelphia.

Not only has Mr. Fisher builded well his own institution, which stands as a monument to his energy, but he has widened the boundaries of his influence in the training which he has imparted to others.

May the years of leisure that are before him be crowned with good health, happiness and the satisfaction of a life's work well done.

Miscellany

A FEAT THAT WE TAKE FOR GRANTED

Scene : Any lying-in chamber.
Time : Any day (or night).
Dramatis Personæ { Any mother. Any baby. Any accoucheur.

THE nine weariful months fixed by the inexorable Lucina, goddess of midwifery, have elapsed, and sharp low back pains mark the inaugural of a triumphant fetal "flight" from that high point of departure —the brim of the pelvic basin—past the bony cape jutting out into the upper reaches of the curved birth canal and called by obstetric geographers the "promontory," through superior, middle and inferior straits, as obstetric mariners dub them, under the pubic arch—"beneath which every candidate for immortality has to pass"—and finally out into a world seeming to be very cold indeed after the warm climate of the uterus left but nineteen hours before.

"Triumphant" for the successful passenger, emerging with a startling cry of salutation to the "strange interlude," that brief spell between birth and the hereafter, called life, but tragic in its ordeal and biologic strain to the blessed mother of this seven or eight pounds of precious humanity, to which have been consecrated all these psychological and physiological hopes and tears—and all the clots of maternal blood that now incarnadine the obstetric "terrain."

Passenger and passages, and the mother herself, the carrier of the immortal freight, have been looked to well by a medical Bernt Balchen. He has searched zealously for evidence of tuberculosis and of heart or kidney lesions, he has measured every diameter, and tested every variation of blood pressure, and regularly gauged every vagary of eliminative organs, and cleared up every manifest focus of infection, and studied the possible significance of every headache, and of every variation in weight, and given exhaustive hygienic counsel, and insured the ingestion of sufficient vitamin A to protect against postpartum infection of the mother, not slighting those other factors that guarantee to the baby recruit the good bones and teeth and stamina that he will sorely need in this tough environment.

It has been a big prenatal job—the most important job in the world: the ushering in of a new soul and the safeguarding of a precious life in jeopardy.

Thus prepared for the great contest, our mother enters upon her labor with the presenting part, which fortunately happens to be the head, well engaged in the brim and with the umbiblical cord where it will not be subjected to strangulation.

Those early nagging pains, after several hours, have shifted to the front of the lower torso, and then follows a period of many hours during which the pains gradually take on the character of regular labor. So the first stage ends and the still more trying ordeal of the second stage begins. The natural expulsive pains must now be reinforced by the voluntary efforts of the patient, which means two hours at least of gruelling work and anguish before the goal is reached.

The outstanding physiological features of the fair sex which always compel the respect of the medical fraternity are the ability to stand, better than men, shock, hemorrhage, and pain; the body heat of women is better conserved; they show superior patience when their endurance and fortitude are challenged and tried, and they accept surgical risks with nonchalance where men frequently show the white feather. It is your man who turns pallid and limp and damp at the sight of a very little of his own blood. So your woman's qualities, particularly in an obstetric situation, are of the first order, because of highly *specialized* capacities having to do with sex.

If first-grade prizes for endurance and heroism were to be awarded by competent judges aviators *would not be considered*. They would go to the aviators' mothers—to whom it would never occur to think of themselves as super-athletes.

For the aviator's possible perils of storm, clouds, fog, ice on the wings, broken manifolds, leaking pipes, and failure of fuel pumps, substitute the dangers of undue hemorrhage, exhaustion, toxemia, lacerations, rupture of the uterus, emergency operations, and infection. Take your choice.

Well, the contest of life versus death ends. It is a "normal" first labor that has occurred. The baby's eyes have been treated in the orthodox manner with one per cent silver nitrate solution and the cord has been tied. The afterbirth has been expelled—an auxiliary agony for a sufficiently harassed mother—the tone of the uterus is normal, and there is no undue bleeding. All has ended well. No tailspins, no parachute jumping, no crack-ups.

And there are no waiting mobs, no press, no camera men, no reception committees, no parade down Broadway, no ticker tape, no ballyhoo about rugged individualism, no speeches at the City Hall, and no banquets. Well, thank God for that; it would spoil everything.

Yet, despite the total absence of the spectacular, a peerless feat of endurance and courage has been staged. Motherhood has functioned impressively, modestly, constructively, and without dramatized consciousness of its supreme merit. Indeed, the heroic stuff *seems* left out altogether.

To the world's perspective, the woman aviator is more than believable; she is even apotheosized. The parturi-

ent is incredible, and she has never told her story. We have dared diffidently to sing her saga for the first time to an incredulous world.

A Suggested Hospital Medical Library*

BIBLIOGRAPHIC INDEX AND YEAR BOOKS

Quarterly Cumulative Index Medicus. American Medical Association, 535 N. Dearborn St., Chicago. Q. $12. An index and guide to the medical literature of the world.

Practical Medicine Series. Eight volumes annually covering Medicine; Surgery; Eye, Ear, Nose and Throat; Pediatrics; Obstetrics and Gynecology; Therapeutics; Dermatology and Urology; Nervous and Mental Diseases. The Yearbook Publishers, 304 S. Dearborn St., Chicago. $20.

MEDICINE

American Journal of the Medical Sciences. Lea and Febiger, 600 Washington Square. Philadelphia. M. $6.

Archives of Internal Medicine. American Medical Association, 535 N. Dearborn St., Chicago. M. $5.

British Medical Journal. British Medical Association House, Tavistock Square, London, W.C. 1. W. 1 shilling, 3 pence per issue.

Canadian Medical Association Journal. Canadian Medical Association, 3640 University St., Montreal, Quebec. M. $6.

Journal of the American Medical Association, 535 N. Dearborn St., Chicago. W. $7.

Journal of Laboratory and Clinical Medicine. C. V. Mosby Company, 3523-3525 Pine Boulevard, St. Louis. M. $8.50.

Lancet, Oxford University Press, 114 Fifth Ave., New York City or 7 Adam St., Adelphi, W.C. 2. W. $12.

New England Journal of Medicine. 8 The Fenway, Boston. W. $6.

To this group may be added the state journal or local general medical journal of the locality in which the hospital is situated.

SURGERY

American Journal of Surgery. Paul B. Hoeber, Inc., 76 Fifth Ave., New York City. M. $10.

Annals of Surgery. J. B. Lippincott Company, East Washington Square, Philadelphia. M. $10.

Surgery. Gynecology and Obstetrics (with International Abstract of Surgery). Surgical Publishing Company, 54 East Erie St., Chicago. M. $12.

SPECIALTIES

American Journal of Diseases of Children. American Medical Association; 535 N. Dearborn St., Chicago. M. $8.

Amercian Journal of Obstetrics and Gynecology. C. V. Mosby Company, 3523-3525 Pine Boulevard, St. Louis. M. $8.50.

American Journal of Ophthalmology. Ophthalmic Publishing Company, 508 Metropolitan Bldg., St. Louis. M. $12.

American Journal of Psychiatry. Johns Hopkins Press, Baltimore. Bi.M. $6. per volume.

American Journal of Roentgenology and Radium Therapy. Charles C. Thomas, 300 E. Monroe St., Springfield, Ill. M. $10.

American Review of Tuberculosis. National Tuberculosis Association, 450 Seventh Ave., New York City. M. $8.

Annals of Otology, Rhinology and Laryngology. Annals Publishing Company, 7200 Wydown Blvd., St. Louis. Q. $6.

Archives of Dermatology and Syphilology. American Medical Association, 535 N. Dearborn St., Chicago. M. $8.

Archives of Neurology and Psychiatry. American Medical Association, 535 N. Dearborn St., Chicago. M. $8.

Journal of Infectious Diseases, 637 South Wood St., Chicago. M. $5.

Journal of Bone and Joint Surgery. 8 The Fenway, Boston. Q. $5.

Journal of Urology. Williams and Wilkins Company, Mount Royal and Guilford Avenues, Baltimore. M. $8.

Physical Therapeutics. 416 E. Market St., Elmira, N. Y. M. $5.

HOSPITALS AND MEDICAL HISTORY

Modern Hospital, Modern Hospital Publishing Company, Inc., 919 North Michigan Ave., Chicago. M. $3.

Annals of Medical History. Paul B. Hoeber, Inc., 76 Fifth Ave., New York City. Bi-M. $10.

This list will be altered by substitution, elimination and additioin according to the funds, requirements of the staff, or character of each individual institution.

BOOKS (FOUNDATIONAL COLLECTION)

The following is a list of recent and outstanding works suggested as a basic or foundational collection:—

ANATOMY

Gray, Henry. Anatomy of the Human Body. Ed. 22. Revised by Warren H. Lewis. Philadelphia, Lea & Febiger. 1930. $10.

ANESTHESIA

Gwathmey, James T. Anesthesia. Ed. 2. New York, The Macmillan Co. 1925. $7.50.

BACTERIOLOGY

Zinsser, Hans. A Textbook of Bacteriology. Ed. 6. New York, D. Appleton & Co. 1927. $7.50.

DERMATOLOGY

Sutton, Richard L. Diseases of the Skin. Ed. 8. St. Louis, C. V. Mosby Co. 1931. $12.

DIAGNOSIS (CLINICAL)

Todd, J. C. and Sanford, A. H. Clinical Diagnosis by Laboratory Methods. Ed. 7. Philadelphia, W. B. Saunders Co. 1931. $6.

DIAGNOSIS (MEDICAL)

Blumer, George (Editor). Bedside Diagnosis by American Authors. 3 vols and index. Philadelphia. W. B. Saunders Co. 1928. $30 per set.

or

Greene, Charles L. Medical Diagnosis for the Student and Practitioner. Ed. 6. Philadelphia, P. Blakiston's Son & Co. [c. 1926]. $12.

DIAGNOSIS (PHYSICAL)

Norris, George W. and Landis, Henry R. M. Diseases of the Chest and the Principles of Physical Diagnosis. Ed. 4. Philadelphia, W. B. Saunders Co. 1929. $10.

or

Cabot, R. C. Physical Diagnosis. Ed. 10. New York. Wm. Wood & Co. 1930. $5.

DIETETICS AND NUTRITION

McCollum, E. V. and Simmonds, Nina. The Newer Knowledge of Nutrition: The Use of Foods for the Preservation of Vitality and Health. Ed. 4. New York, The Macmillan Co. 1929. $5.

or

McLester, James S. Nutrition and Diet in Health and Disease. Ed. 2. Philadelphia, W. B. Saunders Co. 1931. $8.50.

(*Concluded on page 303*)

* Abstracted from an article by Charles Frankenberger, of Brooklyn, N. Y., in the *Bulletin of the American College of Surgeons*, vol. XVI. 2, June, 1932.

MEDICAL BOOK NEWS

Edited by WILLIAM HENRY DONNELLY, M.D.

All books for review and communications concerning Book News should be addressed to the Editor of this department at 1313 Bedford Avenue, Brooklyn, New York.

SEPTEMBER, 1932

REVIEWS

Reconstruction of the Biliary Tract

RECONSTRUCTION OF THE BILIARY TRACT. By Edmund Horgan, M.D., New York, The Macmillan Company, 1932, 201 pages. 8vo. Cloth, $4.00.

This little book of two hundred pages presents clearly and systematically the types of reconstruction operations on the bile ducts and the varieties of each type. The author has searched the voluminous literature of the subject, has described the first operation of each kind and each modification. Pen and ink drawings illustrate the important points in technique. The author had the advantage of association with William J. Mayo. He has been able, therefore, to study the numerous cases reporting to the Mayo Clinic for relief of biliary duct disease. He discusses the fundamental principles governing gall duct reconstruction; anatomical variations of the bile ducts; anomalies of the neighboring vessels; the preoperative care and preparation of the patient; the identification of the common bile duct at secondary operations with suggestions from his experiences; methods of drainage of the common bile duct and the relation to a final perfect result.

Altogether the book is one which should be in every surgeon's library, in fact it makes interesting and instructive reading for the physician in that it shows how extensive a knowledge should be possessed by the surgeon to whom he refers his work.

RUSSELL S. FOWLER.

Dosage and Solutions

DOSAGE AND SOLUTIONS. By C. E. Garnsey. Philadelphia, W. B. Saunders Company, 1932. 141 pages. 12mo. Cloth, $1.25.

This useful and handy little volume can be used by both physicians and nurses.

The arrangement is excellent and the aims of the author in teaching thoroughness and simplicity and the effort to classify problems and the examples used are helpful to the instructor as well as the nurse.

The chapter on drugs and dosage should be read and re-read and the examples used in drilling the nurse how to be accurate can be readily understood.

The laboratory work, the classification of problems and the drill added are very helpful in retaining the information for future use.

The chapter on classification of drugs is written in such a way that it can be readily understood and the definition of a drug, as for instance, an alterative will help the nurse to know what that particular drug is expected to do.

The author is to be congratulated in writing such a work and shows great care in doing so. We consider it a very useful work for the student.

JOSEPH W. MALONE.

Surgery with Special Reference to Podiatry

SURGERY. With Special Reference to Podiatry. By Edward Adams, M.D. New York, International Journal of Surgery Company, 1932. 480 pages. 8vo. Cloth, $5.00.

This is written for podiatrists and as such treats of the particular problems which interest them. It is a bit too elementary for a physician, though it contains many facts which are worth while remembering. It cannot be an impressive volume to a medical man for the same reason that a nurse's text book is not on the office bookshelf. If podiatrists have a working knowledge of the material covered in the text they should be well qualified to practice their calling intelligently.

DONALD E. MCKENNA.

Papers on Surgery and Other Subjects

PAPERS ON SURGERY AND OTHER SUBJECTS. By George Tully Vaughan, M. D., LL. D. Washington, W. F. Roberts Company, 1932. 408 pages, illustrated, 8vo.

A unique record of the workings of a scientific mind over a period of 50 fertile years. The author's observations on the work of great foreign and American surgeons show his keen appreciation for surgical progress. His own cases reflect the care, knowledge and rare good judgement he lavished on the patients entrusted to his care. The volume makes very interesting reading, possessing a rich assortment of medical and surgical case-histories and lacking entirely the didactic and only too frequently tedious characteristics of a textbook.

GEO. WEBB.

Plastic Surgery of the Ear, Nose and Face.

PLASTIC SURGERY OF THE NOSE, EAR AND FACE. By Victor Frühwald, M.D. Wien, Wilhelm Maudrich, 1932. 86 pages, illustrated. 8vo. Cloth, $4.00.

This publication is a short text-book on plastic surgery. The idea of the author is to lay stress on his own personal experiences and make them convincing enough to prevent mistakes by beginners.

The work is concise and presented with remarkable clarity. It has the freshness of a temperamental lecturer. The operations, techniques and after-treatments are the personal experiences of the author and are reliable.

The reviewer is convinced that the book will serve its intended purpose and regrets that the author considers only those plastic deformities which he believes are important, thus limiting very greatly the scope of his work.

L. F. CRASSON.

Nutrition Service in the Field

NUTRITION SERVICE IN THE FIELD. Report of the Subcommittee on Nutrition. Lucy H. Gillett, Chairman. CHILD HEALTH CENTERS: A Survey. Report of the Subcommittee on Health Centers. J. H. Mason Knox, Jr., Chairman, Lillian Laser Strauss, Vice-Chairman. White House Conference on Child Health and Protection. New York, The Century Company, [c. 1932] 139, 57, pages, 8vo. Cloth, $2.00.

This survey of agencies and agents for benefiting the nutrition and health of children through child health centers is clearly and systematically written. It is not more repetitious than might be expected from its content of numerous reports from agencies, which are doing so similar a work. It should be most interesting as a reference book for workers who wish to see the results obtained by the presently available methods.

The publisher's note which follows is a concise and excellent description of its content:

"The first part of the book is devoted to the report of the Subcommittee on Nutrition. This report is a study of nutrition work, a relatively new activity in the general program for child health and protection. It explains what has so far been accomplished, reveals the need for nutrition education, makes definite recommendations for raising services to the required standard, and describes the work of outstanding nutrition services for children in different parts of the country.

The second part of the book is devoted to the report of the Subcommittee on Child Health Centers. This report includes a review of an extensive survey of child health centers, a list of health centers in the United States and its possessions, an account of the nature and scope of the work of these centers, and extending this important part of child welfare work."

CHARLES A. WEYMULLER.

Maternity Handbook for Pregnant Mothers and Expectant Fathers

MATERNITY HANDBOOK FOR PREGNANT MOTHERS AND EXPECTANT FATHERS. By The Maternity Center Association, New York City. New York, G. P. Putnam's Sons, 1932. 178 pages, illustrated. 12mo. Cloth, $1.00.

Stated as written for pregnant mothers and expectant fathers, this is an excellent book, and a welcome addition to our already large list. Miss Ayer's illustrations are very well done, and add considerable interest to Mrs. Stevens' text. There is a wealth of valuable detail, with an abundance of practical suggestions from the long experience of the Maternity Center Association in field work. No one but a nurse in close contact with the problems could write such a book. No undue space is devoted to anatomy, physiology and biology, as in books written by doctors and nurses with a detached point of view. An admirable book to recommend to your patients,—altogether the best that we have seen.

CHARLES A. GORDON.

A Medical Formulary

A MEDICAL FORMULARY. By E. Quin Thornton, M.D. 13th edition. Philadelphia, Lea & Febiger, 1932. 352 pages, 16mo. Flexible Cloth, $2.50.

This work is a very useful book for the general practitioner and is so convenient that it can be carried in one's pocket or bag for ready use.

The author has not gone to extremes in pushing forward new remedies which have not been entirely satisfactory to the profession at large and has not been carried away by extravagant claims. One thing we like about the book is that the author has not forgotten the older remedies which always were useful and have become more important and which have been found to have new actions and greater therapeutic value than has been known or even suspected.

The newer remedies which have been found to have superior value as therapeutic agents have been included. Several pages are given to the Antitoxins, Serobacterins, Serums, Vaccines and Bacterins. The listing of diseases in alphabetical order and the indications for use of the prescriptions under each disease is all one desires. Over 2000 prescriptions are given and one can choose from the list quickly. The printing is clear and distinct. Good paper is used and the compactness of the book makes it very valuable for ready use.

JOSEPH W. MALONE.

Collected Papers of the Mayo Clinic

COLLECTED PAPERS OF THE MAYO CLINIC AND THE MAYO FOUNDATION. Volume 23, 1931. Edited by Mrs. Maud H. Mellish-Wilson and Richard M. Hewitt, M.D. Philadelphia, W. B. Saunders Company, 1932. 1231 pages, illustrated. 8vo. Cloth, $13.00.

The aim of the Collected Papers has always been to give the general practitioner the best and newest that medical research has to offer. The present volume lives up to and surpasses the standards of former editions.

Of the total of 577 papers written in 1931, ninety-nine are reprinted in full, 36 are abridged, 43 are abstracted and 399 are mentioned by title only.

The papers cover a great variety of subjects illuminating every field of medical and surgical endeavor. Some medico-social and medico-pedagogic themes are likewise discussed by the Mayos themselves as well as their associates in speeches made at various congresses and medical meetings.

Of the scientific papers many are of great interest because of their practical importance in the daily work of the practitioner. Gastric function and its relationship to benign and malignant diseases of the stomach; "Medical problems of present-day gastro-enterology,"; Studies in the physiology of the liver and the various tests for estimating its function; The ever absorbing topic of thyroid pathology and function and a host of other subjects of absorbing interest make this volume a veritable treasure-trove.

GEO. WEBB.

Urine Analysis

URINE ANALYSIS. By Byomkes Das Gupta. Calcutta, Butterworth & Co. Ltd., 1932. 141 pages, illustrated. 12mo. Cloth, Rs. 3 (5/—).

One can see that this book consists of extracts of rewritten and centrifugalized class notes. The usual physical, clinical and microscopic examinations of the urine are lucidly and clearly described in a way in which a student wishes to have them described. There are also paragraphs on special examinations, such as, Ehrlich's Diazo Reaction, Russo's Test, Urea Concentration Test of MacLean and Urobilinogen Tests. The formulae for the various solutions commonly used in urine analysis, conversion tables, and tables on the relations of weights and measures are included in the appendix.

SILIK H. POLAYES.

A Manual of Pharmacology

A MANUAL OF PHARMACOLOGY. By Torald Sollmann, M.D. 4th edition, revised. Philadelphia, W. B. Saunders Company, 1932. 1237 pages. 8vo. Cloth, $7.50.

This fourth edition has been revised and brought up to date in a number of respects without markedly increasing the bulk of the book. It has retained as well all the former qualities which make it one of the foremost among textbooks of Pharmacology. The presentation of the more essential facts and explanations in ordinary type and the less frequently used data in smaller type is of especial aid to the medical student.

Such topics as the barbiturates, which were but sparingly referred to in the third edition, are herewith discussed in considerable detail, attention being paid to the relation of this group to anesthesia. The important subjects of temperature regulation, vitamines, bismuth and glandular therapy have been deleted of non-essential facts, revised and made more complete by the addition of newer experimental evidence. Others like cinchophen toxicosis, salyrgan, plasmoquin, liver extract in pernicious anemia and ventriculin are presented for the first time. Such preparations as insulin and ephedrine, however, are still inadequately dealt with.

DAVID I. ABRAMSON.

The Life of Edward Jenner

THE LIFE OF EDWARD JENNER, M.D., F.R.S. NATURALIST, AND DISCOVERER OF VACCINATION. By F. Dawtrey Drewitt, M.A., M.D. New York, Longmans, Green & Co., 1931. 127 pages, illustrated. 12mo. Cloth, $2.00.

This little volume brings to us a description of Edward Jenner's life and work which is both instructive and interesting.

We learn to know this great man better as his character and his viewpoints are clearly revealed to us. Trained under the celebrated John Hunter, Jenner was fitted for a prominent place in the London Medical circles of the day, but this modest and unpretentious character, who loved nature so much, preferred to return to his little home in Berkeley and begin his life's work as a country practitioner.

Nature study occupied his leisure time in the early years of practice and it was then he made his observations on the life history of the cuckoo.

His interest in the relationship existing between cowpox and smallpox, aroused in student days, continued with unabated fervor and with the conviction of genius and a relentless purpose he pursued his inquiry and finally announced the discovery of vaccination in his historic manuscript published in 1798.

Despite criticism, ridicule, insults and commercial exploitation of others the fine character of this man remained without blemish.

A quotation taken from one of his letters remains so beautifully expressive of him it should be ever associated with his name.—"Shall I, who, even in the morning of my days, sought the lowly and sequestered paths of life—the valley and not the mountain; shall I, now my evening is fast approaching hold myself up as an object for fame and fortune? What stock should I add to my little fund of happiness?"

J. C. REGAN.

BOOKS RECEIVED

Books received for review are acknowledged promptly in this column; we assume no other obligation in return for the courtesy of those sending us the same. In most cases, review notes will be promptly published shortly after acknowledgment of receipt has been made in this column.

FORMULAIRE BOUCHARDT. By A. Desgrez and F. Rathery. Paris, Felix Alcan, 1932. 986 pages. 16mo. Cloth, 40 Fr.

THE INTERNE. By Wallace Thurman and A. L. Furman. New York, The Macauley Company. [1932]. 252 pages. 12mo. Cloth, Price $2.00.

THE SIGN OF BABINSKI. A Study of the Evolution of Cortical Dominance in Primates. By John F. Fulton and Allen D. Keller. Springfield, Ill., Charles C. Thomas, 1932. 165 pages. 4to. Cloth, $5.00.

GRUNDFRAGEN DER IMMUNBIOLOGIE UND ALLERGIELEHRE. By L. Bogendörfer, M.D. and others. München, Otto Gmelin, 1932. 253 pages. 8vo. Paper, Paper Marks 9.

IMMUNITAT, ALLERGIE UND INFEKTIONSKRANKHEITEN. Hrsg. von Rudolf Degkwitz, et al. Band III, Heft 4-6. München, Otto Gmelin, 1932. pp. 129 to 253. 8vo. Paper, Quarter-Marks 5.00; individual numbers. Marks 2.00.

CRIMINOLOGY. By Robert H. Gault. New York, D. C. Heath & Company. [1932]. 470 pages. 8vo. Cloth, Price $3.48

MALE DISORDERS OF SEX. By K. M. Walker, M.D. New York. W. W. Norton & Company, Inc., [1929]. 191 pages. 12mo. Cloth, $2.00.

THE PURCHASE OF MEDICAL CARE THROUGH FIXED PERIODIC PAYMENT. By Pierce Williams. New York, National Bureau of Economic Research, (Publication No. 20), 1932. 308 pages. 8vo. Cloth $3.00.

MANUALE DE ANALISI CHIMICA CLINICA, FISIO-PATOLOGICA ED IGIENICA. By Cesare Serono, M.D. Torino, Unione Tipografico —Editrice Torinese, 1932. 483 pages. 8vo. Cloth.

DIABETES IN CHILDHOOD AND ADOLESCENCE. By Priscilla White, M.D. Philadelphia, Lea & Febiger, 1932. 236 pages, illustrated. 8vo. Cloth, $3.75.

AN ELEMENTARY PSYCHOLOGY OF THE ABNORMAL. By W. B. Pillsbury. 1st edition. New York. McGraw-Hill Book Company, Inc., 1932. 375 pages, illustrated. 8vo. Cloth $3.00.

PSYCHIATRY AND MENTAL HEALTH By John Rathbone Oliver, M.D., Ph. D. New York, Charles Scribner's Sons, 1932. 330 pages. 12mo. Cloth, $2.75.

PRINCIPLES OF CHEMISTRY. By Joseph H. Roe, Ph. D. 3rd edition. St. Louis, The C. V. Mosby Company, 1932. 486 pages, illustrated. 12mo. Cloth, $2.50.

AN INTRODUCTION TO DERMATOLOGY. By Richard L. Sutton, M.D. and Richard L. Sutton, Jr., M.D. St. Louis, The C. V. Mosby Company, 1932. 565 pages, illustrated. 8vo. Cloth, $5.00.

YOUR TEETH AND THEIR CARE. By Carl W. Adams, D.D.S. St. Louis, The C. V. Mosby Company, 1932. 141 pages, illustrated. 12mo. Cloth, $1.25.

A Suggested Hospital Medical Library

(Concluded from page 300)

DUCTLESS GLANDS

Falta Wilhelm. Endocrine Diseases Including Their Diagnosis and Treatment. Translated and edited by Milton K. Meyer. Ed. 3. Philadelphia, P. Blakiston's Son & Co. [c. 1923]. $8.50.

Jackson, Arnold S. Goiter and Other Diseases of the Thyroid Gland. New York, Paul B. Hoeber, Inc. 1926. $10.

GASTRO-ENTEROLOGY

Rehfuss, Martin E. Diagnosis and Treatment of Diseases of the Stomach with Introduction to Practical Gastroenterology. Philadelphia, W. B. Saunders Co. 1927. $12.

or

Crohn, B. B. Affections of the Stomach. Philadelphia, W. B. Saunders Co. 1927. $10.

GYNECOLOGY

Graves, William P. Gynecology. Ed. 4. Philadelphia, W. B. Saunders Co. 1928. $10.50.

Crossen, Harry S. and Crossen, Robert J. Operative Gynecology. Ed. 4. St. Louis, C. V. Mosby Co. 1930. $15.

HISTOLOGY

Bailey, Frederick R. Textbook of Histology. Ed. 7. Revised and rewritten by Oliver S. Strong and Adolph Elwyn. New York, Wm. Wood & Co. 1925. $7.

or

Maximow, Alexander A. A Textbook of Histology. Completed and edited by William Bloom. Philadelphia, W. B. Saunders & Co. 1930. $9.

HISTORY OF MEDICINE

Garrison, Fielding H. An Introduction to the History of Medicine. Ed. 4. Philadelphia, W. B. Saunders Co. 1929. $12.

HYGIENE AND PREVENTIVE MEDICINE

Rosenau, Milton J. Preventive Medicine and Hygiene. Ed. 5. New York, D. Appleton & Co. 1927. $10.

INFECTIOUS DISEASES

Schamberg, Jay F. and Kolmer, John A. Acute Infectious Diseases. Ed. 2. Philadelphia, Lea & Febiger, 1928. $10.

MATERIA MEDICA AND THERAPEUTICS

Hare, Hobart A. A Textbook of Practical Therapeutics. Ed. 21. Philadelphia, Lea & Febiger. 1930. $7.50.

or

Potter, Sam'l O. L. Therapeutics, Materia Medica and Pharmacy. Ed. 15. Revised by R. J. E. Scott. Philadelphia, P. Blakiston's Son & Co. [c. 1931]. $8.50.

Pharmacopoeia of the United States of America. Tenth Decennial Revision. Philadelphia, J. B. Lippincott Co. [c. 1925]. $4.

MEDICAL DICTIONARIES

Dorland, W. A. Newman. American Illustrated Medical Dictionary. Ed. 15. Philadelphia, W. B. Saunders Co. 1929. $7. With thumb index, $7.50.

or

Gould, George M. Gould's Medical Dictionary. Ed. 3. Edited by R. J. E. Scott. Philadelphia, P. Blakiston's Son & Co. [c. 1931]. $7. Indexed, $7.50.

or

Stedman, Thomas L. Practical Medical Dictionary. Ed. 11. New York, Wm. Wood & Co. 1930. $7. With thumb index, $7.50.

MEDICAL JURISPRUDENCE AND TOXICOLOGY

Webster, Ralph W. Legal Medicine and Toxicology. Philadelphia, W. B. Saunders Co. 1930. $8.50.

or

Herzog, Alfred W. Medical Jurisprudence. Indianapolis, Bobbs-Merrill Co. [c. 1931]. $15.

Autenrieth, W. Laboratory Manual for the Detection of Poisons and Powerful Drugs. Ed. 6. Philadelphia. P. Blakiston's Son & Co. 1928. $6.

MEDICAL LITERATURE AIDS

Mellish-Wilson, Maud H. The Writing of Medical Papers. Ed. 3. Philadelphia, W. B. Saunders Co. 1929. $1.50.

Simmons, George H. and Fishbein, Morris. The Art and Practice of Medical Writing. Chicago, American Medical Association. 1925. $1.50.

NEUROLOGY AND PSYCHIATRY

Strecker, Edward A. and Ebaugh, Franklin G. Practical Clinical Psychiatry for Students and Practitioners. Ed. 3. Philadelphia, P. Blakison's Son & Co. [c. 1931]. $4.

Dana, Charles L. Textbook of Nervous Diseases. Ed. 10. New York, Wm. Wood & Co. 1925. $7.

or

Jelliffe, S. E. and White, W. A. Diseases of the Nervous System. Ed. 5. Philadelphia, Lea & Febiger. 1929. $9.50.

OBSTETRICS

Williams, J. Whitridge. Obstetrics. Ed. 6. New York, D. Appleton & Co. 1930. $10.

or

De Lee J. B. The Principles and Practice of Obstetrics. Ed. 5. Philadelphia, W. B. Saunders Co. 1928. $12.

OPHTHALMOLOGY

de Schweinitz, George E. Diseases of the Eye. Ed. 10. Philadelphia, W. B. Saunders Co. 1924. $10.

or

Fuchs, Ernst. Textbook of Ophthalmology. Ed. 8. Philadelphia, J. B. Lippincott Co. 1924. $9.

or

May, Charles H. Manual of the Diseases of the Eye. Ed. 13. New York, Wm. Wood & Co. 1930. $4.

ORTHOPEDIC SURGERY

Whitman, Royal. A Treatise on Orthopaedic Surgery. Ed. 9. Philadelphia, Lea & Febiger. 1930. $10.

OTO-LARYNGOLOGY

Ballenger, William L. Diseases of the Nose, Throat and Ear, Medical and Surgical. Ed. 6. Revised by Howard C. Ballenger. Philadelphia, Lea & Febiger. 1930. $11.

or

Jackson, Chevalier and Coates, George M. (Editors). The Nose, Throat and Ear and Their Diseases. Philadelphia, W. B. Saunders Co. 1929. $13.

PATHOLOGY

Kaufmann, Edward. Pathology: Translated by Stanley P. Reimann. 3 vols. Philadelphia, P. Blakiston's Son & Co. [c. 1929]. $30.

or

Delafield, Francis and Prudden, T. Mitchell. A Text-

book of Pathology. Ed. 15. Revised by Francis Carter Wood. New York, Wm. Wood & Co. 1931. $10.

or

MacCallum, W. G. A Textbook of Pathology. Ed. 3. Philadelphia, W. B. Saunders Co. 1924. $10.

Kolmer, J. A. and Boerner, Fred. Approved Laboratory Technic. New York, D. Appleton & Co. 1931. $7.50.

Ewing, James. Neoplastic Diseases. A Treatise on Tumors. Ed. 3. Philadelphia, W. B. Saunders Co. 1928. $14.

PEDIATRICS

Holt, L. Emmett and Howland, John. The Diseases of Infancy and Childhood for the Use of Students and Practitioners of Medicine. Ed. 9. New York, D. Appleton & Co. 1926. $8.50.

PHYSIOLOGIC CHEMISTRY

Hawk, Philip B. and Bergeim, Olaf. Practical Physiological Chemistry. Ed. 10. Philadelphia, P. Blakiston's Son & Co. [c. 1931]. $6.50.

or

Mathews, Albert P. Physiological Chemistry. Ed. 5. New York, Wm. Wood & Co. 1930. $7.

PHYSIOLOGY

Howell, William H. A Textbook of Physiology for Medical Students and Physicians. Ed. 11. Philadelphia, W. B. Saunders Co. 1930. $6.50.

Macleod, John J. R. Physiology and Biochemistry in Modern Medicine. Ed. 6. St. Louis, C. V. Mosby Co. 1930. $11.

PHYSIOTHERAPY

Granger, Frank B. Physical Therapeutic Technic. Philadelphia, W. B. Saunders Co. 1929. $6.50.

or

Stewart, Harry E. Physiotherapy: Theory and Clinical Application. Ed. 2. New York, Paul B. Hoeber, Inc. 1929. $7.50.

PRACTICE OF MEDICINE

Osler, Sir William (The Late). The Principles and Practice of Medicine. Ed. 11. Revised by Thomas McCrae. New York, D. Appleton & Co. 1930. $8.50.

Cecil, Russell L. (Editor). A Textbook of Medicine, by American Authors. Ed. 2. Philadelphia, W. B. Saunders Co. 1930. $9.

PROCTOLOGY

Yeumans, Frank C. Proctology: a Treatise on the Malformations, Injuries and Diseases of the Rectum, Anus and Pelvic Colon. New York, D. Appleton & Co. 1929. $12.

or

Pruitt, Marion C. Modern Proctology. St. Louis, C. V. Mosby Co. 1931. $8.

RADIUM AND ROENTGENOLOGY

Rhinehart, Darmon A. Roentgenographic Technique. Philadelphia, Lea & Febiger. 1930. $5.50.

Holmes, George W. and Ruggles, Howard E. Roentgen Interpretation. Ed. 4. Phialdelphia, Lea & Febiger. 1931. $5.

Keplan, Ira I. Practical Radiation Therapy. With a Special Chapter on Applied X-Ray Physics, by Carl B. Braestrup. Philadelphia, W. B. Saunders Co. 1931. $6.

STOMATOLOGY

Mead, Sterling V. Diseases of the Mouth. Ed. 3. St. Louis, C. V. Mosby Co. 1928. $10.

Spencer, W. G. and Cade S. Diseases of the Tongue. Philadelphia, P. Blakiston's Son & Co. 1931. $10.

SURGERY (INCLUDING PLASTIC)

DaCosta, John C. Modern Surgery, General and Operative. Assisted by Benjamin Lipshutz. Ed. 10. Philadelphia, W. B. Saunders Co. 1931. $10.

Hunt, H. Lyons. Plastic Surgery of the Head, Face and Neck. Philadelphia, Lea & Febiger. 1926. $7.

Kanavel, Allen B. Infections of the Hand. Ed. 5. Philadelphia, Lea & Febiger. 1925. $5.50.

SYPHILOLOGY

Stokes, John H. Modern Clinical Syphilology: Diagnosis, Treatment, Case Studies. Philadelphia, W. B. Saunders Co. 1926. $12.

TROPICAL MEDICINE

Stitt, E. R. The Diagnosis and Treatment of Tropical Diseases. Ed. 5. Philadelphia, P. Blakiston's Son & Co. [c. 1929]. $9.

UROLOGY

Young, Hugh H. and Davis, David M. Young's Practice of Urology. 2 vols. Philadelphia, W. B. Saunders Co. [c. 1926]. $25 per set.

Acetyl Salicylic Acid Allergy

1. Drug idiosyncrasies in allergic patients are not infrequent. An abnormal response to acetylsalicylic acid is probably more common than to any other drug.

2. Nostrums containing this compound are not "harmless" from the standpoint of the allergic individual. Four cases are reported in an effort to substantiate that point of view. One patient died within a short time after taking a small dose of this nostrum.—R. W. LAMSON, M.D.; ROY THOMAS, M.D., *J. A. M. A.*, July 9, 1932.

How the Doctor Can Save

The advantage of substantial discounts on purchases from representative stores is offered without cost to physicians, their wives and families by The Professional Society.

Automobiles, auto repairs and parts, books, clothing, surgical equipment, laundry service, magazines—practically everything needed in the home and office is listed in the Society's Doctors' Shopping Directory.

The Professional Society with an Advisory Council of many well-known physicians and dentists was founded one year ago, for the purpose of reducing living costs for professional people. Its membership and its activities in their behalf have grown rapidly.

Doctors who desire to enjoy immediately the attractive savings this organization effects for its members, should write immediately to The Professional Society, 274 Madison Avenue, New York City.

Kings County Research Laboratories Uses Kline Test

The diagnostic and exclusion Kline tests with unheated serum, heated serum defibrinated blood and spinal fluids which were first developed and used at the Mount Sinai Hospital of Cleveland, Ohio, are now being used throughout this country with most satisfactory results, according to the Kings County Research Laboratories. Over one hundred reports have appeared in the American and foreign medical journals regarding the efficacy of the Kline tests in the diagnosis of syphilis.

The Kline antigen emulsions which are used in these tests have been found to be more sensitive and no less specific than the Kahn antigens.

Diagnostic and exclusion Kline tests are done on blood and spinal fluid specimens.

The exclusion test which is more sensitive than the diagnostic test becomes negative only many months after the sensitive Wasserman test becomes negative in treated syphilitic cases; this more closely approximates the time and amount of treatment which is considered adequate.

The exclusion test has also been found to be very satisfactory for determining the suitability of donors immediately before transfusion.

The finger blood test which requires but a small amount of easily obtainable finger blood is particularly useful in the diagnosis of syphilis in infants, children and obese patients in whom venepuncture is difficult.

The Kings County Research Laboratories is the only Laboratory in Brooklyn using the Kline Test at the present time. This Laboratory under the direction of A. J. Blaivas does Laboratory work in all its branches. Specimens are called for at the patient's home or the Doctor's office without charge. In cases where it is necessary the Laboratory car with chauffeur will call at the doctor's office or the patient's home for the patient and take them home again without charge.